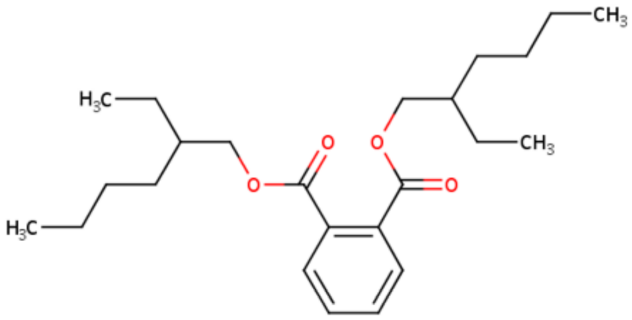
United States
Environmental Protection Agency

May 2025
Office of Chemical Safety and
Pollution Prevention

Data Quality Evaluation and Data Extraction Information for Environmental Fate and Transport for Diethylhexyl Phthalate (DEHP) (1,2-Benzenedicarboxylic acid, 1,2-bis(2-ethylhexyl) ester)

Systematic Review Support Document for the Draft Risk Evaluation

CASRN: 117-81-7



May 2025

This supplemental file contains information regarding the data extraction and evaluation results for data sources that were considered for the *Draft Risk Evaluation for Diethylhexyl Phthalate (DEHP)* and that underwent systematic review. EPA used the TSCA systematic review process described in the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances* (also referred to as the '2021 Draft Systematic Review Protocol'). The systematic review steps are further described in the *Draft Systematic Review Protocol for Diethylhexyl Phthalate (DEHP)*. EPA conducted data extractions and data quality evaluations based on author-reported descriptions and results; additional analyses (*e.g.*, statistical analyses) potentially conducted by EPA are not contained in this supplemental file. Additionally, the overall quality determination (OQD) for each reference represents the data as a whole for each study and not for individual metric domains within a study.

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5644211	Group, E. F., Jr (1986). Environmental fate and aquatic toxicology studies on phthalate esters. Environmental Health Perspectives 65:337-340.	**898**
1335846	Hollyfield, S., Sharma, V. K. (1995). ORGANIC CONTAMINANTS AND CHARACTERISTICS OF SEDIMENTS FROM OSO BAY SOUTH TEXAS USA. Environmental Geology 25(2):137-140.	**900**
5432997	IOP, (2017). Removal efficiency of polycyclic aromatic hydrocarbons and phthalate esters by surface flow wetland in Shunyi district, Beijing. IOP Conference Series-Earth and Environmental Science 59(1):012041.	**902**
5490434	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.	**904**
5471352	Klöpffer, W., Kaufmann, G., Rippen, G., Poremski, H. J. (1982). A laboratory method for testing the volatility from aqueous solution: first results and comparison with theory. Ecotoxicology and Environmental Safety 6(6):545-559.	**906**
3580141	Lee, W., Park, S. H., Kim, J., Jung, J. Y. (2015). Occurrence and removal of hazardous chemicals and toxic metals in 27 industrial wastewater treatment plants in Korea. Desalination and Water Treatment 54(4-5):1141-1149.	**908**
5576760	Lin, L., Dong, L., Meng, X., Li, Q., Huang, Z., Li, C., Li, R., Yang, W., Crittenden, J. (2018). Distribution and sources of polycyclic aromatic hydrocarbons and phthalic acid esters in water and surface sediment from the Three Gorges Reservoir. Journal of Environmental Sciences 69:271-280.	**910**
5433350	Liu, H., Chu, Y., Fang, C. (2016). Removal of phthalic acid diesters in the municipal solid waste incineration plant leachate treatment process. Environmental Engineering and Management Journal 15(9):2127-2133.	**912**
3016266	Ma, T. T., Wu, L., Chen, L., Zhang, H., Teng, Y., Luo, Y. M. (2015). Phthalate esters contamination in soils and vegetables of plastic film greenhouses of suburb Nanjing, China and the potential human health risk. Environmental Science and Pollution Research 22(16):12018-12028.	**914**
1250779	Martin Ruel, S., Choubert, J. M., Budzinski, H., Miège, C., Esperanza, M., Coquery, M. (2012). Occurrence and fate of relevant substances in wastewater treatment plants regarding Water Framework Directive and future legislations. Water Science and Technology 65(7):1179-1189.	**916**
1249997	Marttinen, S. K., Kettunen, R. H., Rintala, J. A. (2003). Occurrence and removal of organic pollutants in sewages and landfill leachates. Science of the Total Environment 301(1-3):1-12.	**918**
1339689	Marttinen, S. K., Kettunen, R. H., Sormunen, K. M., Rintala, J. A. (2003). Removal of bis(2-ethylhexyl) phthalate at a sewage treatment plant. Water Research 37(6):1385-1393.	**920**
2518985	Melo-Guimarães, A., Torner-Morales, F. J., Durán-Álvarez, J. C., Jiménez-Cisneros, B. E. (2013). Removal and fate of emerging contaminants combining biological, flocculation and membrane treatments. Water Science and Technology 67(4):877-885.	**922**
1269556	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).	**924**
1265686	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.	**926**
7681905	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.	**928**
2152195	Olofsson, U., Lundstedt, S., Haglund, P. (2010). Behavior and fate of anthropogenic substances at a Swedish sewage treatment plant. Water Science and Technology 62(12):2880-2888.	**938**
2345971	Osachoff, H. L., Mohammadali, M., Skirrow, R. C., Hall, E. R., Brown, L. L., van Aggelen, G. C., Kennedy, C. J., Helbing, C. C. (2014). Evaluating the treatment of a synthetic wastewater containing a pharmaceutical and personal care product chemical cocktail: Compound removal efficiency and effects on juvenile rainbow trout. Water Research 62C:271-280.	**940**
1316097	Ozretich, R. J., Schroeder, W. P. (1986). DETERMINATION OF SELECTED NEUTRAL PRIORITY ORGANIC POLLUTANTS IN MARINE SEDIMENT TISSUE AND REFERENCE MATERIALS UTILIZING BONDED-PHASE SORBENTS. Analytical Chemistry 58(9):2041-2048.	**942**
789349	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.	**944**

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Study Citation:	Behnke, W., Nolting, F., Zetzsch, C. (1987). The atmospheric fate of di(2-ethylhexyl-)phthalate, adsorbed on various metal-oxide model aerosols and on coal fly-ash. Journal of Aerosol Science 18(6):849-852.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5692914

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Simulated air environment in aerosol smog chamber with test substance measured by GC
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA
Duration and Test Temperature	1 day; Not reported
Light Source, Intensity, and additional light details	Solar simulator; Not reported; simulated sunlight
Source Wavelength Lower and Upper	Not reported; 360 nm
Test Details and Control	Aerosols SiO2, Al2O3, Fe2O3, TiO2, NaCl, fly ash; Not reported
Initial Concentration, Reference Compound	Not reported Not reported; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	OH reaction rate constant; 1.4E-11 cm3/sec; Not reported
Method Details Results and Products Details Results	Aerosol rate constants ranged from 0.8 (coal fly ash) to 1.4E-11 cm3/sec (Al2O3); ozone reaction rate constant <10E-18 cm3/sec in SiO2 experiments.; Not reported
Parameter Value and Parameter Results	Not reported; Not reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not reported; Not reported; Not reported
Results Remarks, Sample time Results, Results Details	Not reported; Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	Storage conditions and preparation details were not reported, but is unlikely to influence the study results.

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Study Citation:	Behnke, W., Nolting, F., Zetzsch, C. (1987). The atmospheric fate of di(2-ethylhexyl-)phthalate, adsorbed on various metal-oxide model aerosols and on coal fly-ash. Journal of Aerosol Science 18(6):849-852.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5692914

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some test conditions were not reported, but is unlikely to influence the results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	Metric is not applicable to this endpoint.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Metric is not applicable to this endpoint.
	Metric 10:	Sampling Methods	N/A	Metric is not applicable to this endpoint.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Assessment addressed the outcome of interest.
	Metric 12:	Test Substance Purity	Low	Sampling method details were not well described.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were not well described or discussed, but is not likely to have minimal impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Metric is not applicable to this endpoint.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Minimal data reporting including omissions were extraction efficiency, percent recovery, and mass balance.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited kinetic calculation descriptions.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Limited information makes it difficult to determine the reasonableness of this the results.
	Metric 18:	QSAR Models	N/A	Metric is not applicable to this endpoint.

Overall Quality Determination — Medium

* Related References: Cited in ECHA

Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	85251

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14-C labelled; Synthesized by the study laboratory; NR; >98% Notes: Reported generally for the 100 chemicals investigated by the study.
Duration and Test Temperature	17 hours; Not reported
Light Source, Intensity, and additional light details	Not reported; Not reported; Not reported
Source Wavelength Lower and Upper	>290 nm; Not reported
Test Details and Control	Test substance sorbed to silico-gel, % CO2, organics, and unreacted were measured.; Not reported
Initial Concentration, Reference Compound	Not reported Not reported; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Not Reported; Not Reported
Method Details Results and Products Details Results	Not reported; Not Reported
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not Reported; 1.6%; Not Reported
Results Remarks, Sample time Results, Results Details	Degradation as a percentage of applied test substance.; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance was synthesized by the study laboratory and purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Limited information on test substance preparation was reported, no storage information was provided.

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Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	85251

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Limited testing conditions were provided, only lower range of UV and duration were reported.
	Metric 7:	Testing Consistency	High	Test set up was consistent across test systems.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining photolytic degradation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not reported, frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Limited study details makes study interpretation difficult.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical methods were not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The lack of study details make verification of study results difficult.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Kawaguchi, H. (1994). Photodecomposition of bis-2-ethylhexyl phthalate. Chemosphere 28(8):1489-1493.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5160362

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Bis-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; other: photodecomposition
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; common commercial source; NR; purest grade available Notes: BEHP
Duration and Test Temperature	14 hrs; A constant temperature in a thermostated box; results at 30-50°C were reported
Light Source, Intensity, and additional light details	xenon-lamp; 300 W; Ushio UXL-300D
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	1 cm3 quartz glass rectangular cell photoreactor; air samples were withdrawn periodically from the outer Pyrex reactor with a syringe; not reported
Initial Concentration, Reference Compound	not reported; not reported
Substance Wavelength Lower and Upper	not reported; ca. 330 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	not reported; not reported; not reported
Method Details Results and Products Details Results	GC with TCD and FID detectors; 2-ethylhexene-1, 2-ethylhexanol and phthalic anhydride
Parameter Value and Parameter Results	not reported; CO2 evolution
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	not reported; not reported; not reported
Results Remarks, Sample time Results, Results Details	0.5-0.7 mg CO2/g DEHP evolved after 14 hours of irradiation; 14 hours; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	Medium	The test substance source and purity were reported in a general manner.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Controls were not explicitly included.
Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions			

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Study Citation:	Kawaguchi, H. (1994). Photodecomposition of bis-2-ethylhexyl phthalate. Chemosphere 28(8):1489-1493.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5160362

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were reported with limited detail.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Data reported was limited.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study.

Overall Quality Determination — Medium

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Duration and Test Temperature	NR; NR
Light Source, Intensity, and additional light details	NR; Not Reported; Not Reported
Source Wavelength Lower and Upper	NR; Not Reported
Test Details and Control	Not Reported; NR
Initial Concentration, Reference Compound	NR Not Reported; NR
Substance Wavelength Lower and Upper	NR; Not Reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; < 2 d; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	NR; Not Reported; Not Reported
Method Details Results and Products Details Results	Not Reported; NR
Parameter Value and Parameter Results	NR; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not Reported; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Cited Cadogan DF et al; Prog Rubber Plast Technol 10: 1-19 (1994) HERO ID 5349210

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; calculation; None
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	NR; NR
Light Source, Intensity, and additional light details	NR; Not Reported; Not Reported
Source Wavelength Lower and Upper	Not Reported; Not Reported
Test Details and Control	Not Reported; NR
Initial Concentration, Reference Compound	NR Not Reported; NR
Substance Wavelength Lower and Upper	Not Reported; Not Reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	reaction with OH radicals; 21.955X10-12 cm3/molecule/s; Not Reported
Method Details Results and Products Details Results	NR; NR
Parameter Value and Parameter Results	9.0 hours (0.38 days); half-life
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	NR; NR; NR
Results Remarks, Sample time Results, Results Details	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient information reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not described clearly and the lack of information was likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

* Related References: cites: Atkinson R (2000) Atmospheric oxidation. In: Boethling RS,Mackay D (eds) Handbook ofproperty estimation methods for chemicals, environmental and health sciences. Lewis,Boca Raton, FL, p 335, chap 14 (not in distiller)

Study Citation:	Behnke, W., Nolting, F., Zetzsch, C. (1987). The hydrolysis of a monolayer of di-(2-ethylhexyl) phthalate, adsorbed on various atmospheric model aerosol materials. Journal of Aerosol Science 18(6):853-856.
OECD Harmonized Template:	Hydrolysis
HERO ID:	791516

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	No; Experimental; None
Solvent, Reactivity, Storage, Stability	Not Reported; NR; NR; NR
Radiolabel, Source, State, Purity	NA; NR; NR; NR Notes: Test substance sorbed onto model aerosol materials: SiO2, coal fly ash, Al2O3, TiO2, and Fe2O3
Buffer, Test Temperature, Number of Replicates	NA; Room temperature; NR
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	NA; Not Reported
Sampling Frequency and Test Setup	Not Reported; Test substance tested in the dark at room temperature and 50% relative humidity at surface concentrations of less than a mono-layer, sorbed onto highly dispersible aerosol materials: SiO2, coal fly ash, Al2O3, TiO2, and Fe2O3.
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	GC and Micro-HPLC with UV and IR; Not Reported; Not Reported
Transformation Products	Phthalic acid, mono-(2-ethylhexyl-)phthalate, 2-ethylhexanol
Reference Substance and Reference Substance Results	Not Reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not Reported; Not Reported; Not Reported
Results Remarks	No hydrolysis was observed with SiO2 or coal fly ash.ln ([DEHP]/[DEHP_0]) = -k_1*tln (([DEHP_0] - [MEHP])/[DEHP0]) = -k_2*tln (([DEHP_0] - [Pa])/[DEHP0]) = -k_2*tk1 >> k2DEHP time constants Al2O3 t_1 = 30 d, t_2 = 140 dFe2O3 t_1 = 1 d, t_2 = 4 dTiO2 t_1 = 1.5 d, t_2 = 20 d

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Controls are not required for hydrolysis studies.
Metric 4:	Test Substance Stability	Low	Test substance preparation and storage were not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Nominal concentrations of the test substance were reported, stability was not reported.
Metric 6:	Testing Conditions	Medium	Limited testing conditions were reported, temperature was reported qualitatively. No details on test set up were included.

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Study Citation:	Behnke, W., Nolting, F., Zetzsch, C. (1987). The hydrolysis of a monolayer of di-(2-ethylhexyl) phthalate, adsorbed on various atmospheric model aerosol materials. Journal of Aerosol Science 18(6):853-856.
OECD Harmonized Template:	Hydrolysis
HERO ID:	791516

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Reported test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Hydrolysis kinetics on particulates was determined appropriately and products were reported.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not reported, however sampling frequency was appropriate for kinetics calculations.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty and variability was not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was appropriate; limits or detection or any other analytical details were not reported. Raw data was reported graphically only.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described in depth and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Lack of study experimental details or reporting of an overall half-life make interpreting the plausibility of the study difficult.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination Medium

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.
OECD Harmonized Template:	Hydrolysis
HERO ID:	680048

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, Guideline	No; Experimental, pH dependent, half-life reported, reaction rate reported; None
Solvent, Reactivity, Storage, Stability	Artificial river water; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Kishida Chemical, Osaka, Japan; Liquid; Analytical grade
Buffer, Test Temperature, Number of Replicates	HCl or NaOH; 0.4 - 27.4 deg C; Average = 10.8 deg C; 1
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	5.0, 6.0, 7.0, 8.0, 9.0; 140 days
Sampling Frequency and Test Setup	Approx. every 10 days; 30 mL solution at pH 5.0, 6.0, 7.0, 8.0, or 9.0, placed in 50 mL pyrex glass test tube and sealed with rubber stopper, and wrapped with aluminum foil. Tubes kept on the roof of a building at Osaka University, Japan (34 N, 135 E) from September 2004 to March 2005. Tests conducted in the dark.
Concentration	0.35 mmol/L
Analytical Method, Analytical Details, and Statistics	HPLC UV-Vis at 254 nm; Aliquot of the sample was extracted with acetonitrile and centrifuged, retaining the supernatant for analysis. Errors for PAE's were <5%.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	NR; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	NR; 8.2E-4 /d (pH 5), 5.6E-4 /d (pH 6), negligible (pH 7), 6.8E-4 /d (pH 8), 8.4E-4 /d (pH 9); 840 d (pH 5), 1300 d (pH 6), negligible (pH 7), 1000 d (pH 8), 830 d (pH 9)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported, the purity was reported qualitatively as analytical grade.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Controls are not required for this study type.
	Metric 4:	Test Substance Stability	Medium	Test substance storage was not reported, mixing was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its water solubility, but was treated with an ultrasonicator to ensure homogenization.

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Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.
OECD Harmonized Template:	Hydrolysis
HERO ID:	680048

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions (temperature, pH) were reported. Due to the nature of the study, there was a wide range of temperatures used; this however may provide results which are closer to environmental behavior.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining hydrolytic loss.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported generally, frequency was reported graphically and was acceptable for rate determination.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability was not addressed as only one replicate per test condition was used.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and extraction recovery were not reported. Raw data was reported graphically.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were reasonable based on the method but the test substance was tested above the water solubility and the temperature fluctuation may have caused the half-life to be lower than other previously determined values.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Low

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Hydrolysis
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Buffer, Test Temperature, Number of Replicates	NR; NR; NR
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	7; NR
Sampling Frequency and Test Setup	NR; NR
Concentration	NR -
Analytical Method, Analytical Details, and Statistics	NR; NR; Not Reported
Transformation Products	NR
Reference Substance and Reference Substance Results	NR; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not Reported; Not Reported; 2,000 years
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Hydrolysis
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable for this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination Medium

* Related References: Staples CA et al; Chemosphere 35: 667-715 (1997) HEROID not located.

Study Citation:	Wolfe, N. L., Steen, W. C., Burns, L. A. (1980). Phthalate ester hydrolysis: Linear free energy relationships. Chemosphere 9(7):403-408.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5335927

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Alkaline hydrolysis rate determination
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Purchased commercially; NR; No further purification, used as received
Buffer, Test Temperature, Number of Replicates	Not reported; 30.00±0.05°C; 2
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	10 - 12; Not reported
Sampling Frequency and Test Setup	Not reported; Not reported
Concentration	less than 10E-5 M
Analytical Method, Analytical Details, and Statistics	GLC (3% SE-30, electron capture) or acid quenching of reaction and analysis by LC (ODS - 50% methanol-water, UV detector 230 n); Test substance extracted with benzene before GLC analysis; ±0.1 x 10^-4 M^-1 sec ^-1
Transformation Products	Monoacid and diacid
Reference Substance and Reference Substance Results	Not reported; Not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; 1.1x10-4 M-1 sec-1; Not reported
Results Remarks	Second order alkaline hydrolysis rate constant average of two determinations

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A concurrent negative control was not included.
Metric 4:	Test Substance Stability	Medium	Limited method details reported in this source, may have been reported elsewhere.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable.
Metric 6:	Testing Conditions	High	Key test conditions were reported.
Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms			

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Study Citation:	Wolfe, N. L., Steen, W. C., Burns, L. A. (1980). Phthalate ester hydrolysis: Linear free energy relationships. Chemosphere 9(7):403-408.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5335927

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Sample methods and frequency were not reported but assumed to be appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in trials was accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Target chemical concentrations, extraction efficiency, and limit of detection were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chen, C. Y.,u (2010). The oxidation of di-(2-ethylhexyl) phthalate (DEHP) in aqueous solution by UV/H2O2 photolysis. Water, Air, and Soil Pollution 209(1-4):411-417.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	1322004

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): Non-guideline UV photolysis study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; 99%
Duration and Test Temperature	180 minutes; 25±1°C
Light Source, Intensity, and additional light details	8 UV lamps (30 W) with quartz sleeves; 2-14 mW cm2; light intensity was measured by radiometer
Source Wavelength Lower and Upper	254 nm; Not applicable
Test Details and Control	recirculating photoreactor system; pH adjusted to 7 (+/-0.3) with 1 N HCl and 1 N NaOH; Not reported
Initial Concentration and Reference Compound	3-8 ug/mL; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products Details Results	HPLC and GC-MS analysis of test substance in water; 6 substances identified
Parameter Value and Parameter Results	not applicable; Removal of test substance
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not reported; Not reported; 73.5%; Not reported
Results Remarks, Sample time Results, Results Details	k1 = 4.20E-3 minute-1; 180 minutes; direct UV photolysis

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance identified by chemical name.
	Metric 2: Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
	Metric 3: Study Controls	Low	A dark control was not included.
	Metric 4: Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Low	Extraction was reported however the percent recovery was not reported and this may have a substantial impact on the results.

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Study Citation:	Chen, C. Y.,u (2010). The oxidation of di-(2-ethylhexyl) phthalate (DEHP) in aqueous solution by UV/H2O2 photolysis. Water, Air, and Soil Pollution 209(1-4):411-417.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	1322004

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	Medium	The system type and design may not be capable of appropriately maintaining substance concentrations (leaching, absorbing to test system) but this deviation was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed and reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted or identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	There were omissions in the calculation details; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	The results were unacceptable due to lack of dark control; other biotic or abiotic loss processes were not able to be ruled out.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Chung, Y. C., Chen, C. Y. (2009). Degradation of Di-(2-ethylhexyl) Phthalate (DEHP) by TiO b2 s Photocatalysis. Water, Air, and Soil Pollution 200, no. 1-4:191-198.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5711062

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexylphthalate
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): Non-guideline UV photolysis study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; Analytical grade Notes: Monitoring study
Duration and Test Temperature	Not reported; 25°C
Light Source, Intensity, and additional light details	Xenon lamp; 1.00E-6 to 4.00E-6 Einstein l-1 s-1; Not reported
Source Wavelength Lower and Upper	254 nm; Not reported
Test Details and Control	pH 4.0 in quartz beaker; Not reported
Initial Concentration and Reference Compound	75 µg/L; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products Details Results	HPLC with UV-Vis detector and GC-MS; Not applicable
Parameter Value and Parameter Results	Not reported; Not reported
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not reported; Not reported; 0%; Not reported
Results Remarks, Sample time Results, Results Details	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study did not report concurrent control groups and this omission may significantly impact study results.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance.
Domain 3: Test Conditions				

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Study Citation:	Chung, Y. C., Chen, C. Y. (2009). Degradation of Di-(2-ethylhexyl) Phthalate (DEHP) by TiO b2 s Photocatalysis. Water, Air, and Soil Pollution 200, no. 1-4:191-198.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5711062

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Low	The test method was suitable for the test substance with minor deviations; however, the deviations were likely to have a substantial impact on the results.
	Metric 6:	Testing Conditions	Medium	Some test conditions were not reported.
	Metric 7:	Testing Consistency	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 8:	System Type and Design	Medium	The system type and design may not be capable of appropriately maintaining substance concentrations but this deviation was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 12:	Test Substance Purity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted or identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results may be limited since low pH conditions were used and only one trial without catalyst was reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	85251

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR; described in previous publications
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Most 14C-labeled chemicals were purchased; others synthesized in testing lab; NR; ≥98%
Duration and Test Temperature	17 hours; Not reported
Light Source, Intensity, and additional light details	Not reported; > 290 nm; Absorbed on silica gel
Source Wavelength Lower and Upper	Not reported; Not reported
Test Details and Control	Volatile compounds, as well as CO2, were analyzed after irradiation; Not reported
Initial Concentration and Reference Compound	Not reported Not reported; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products Details Results	Not reported; Not reported
Parameter Value and Parameter Results	Not reported; Percentage of applied amount
Reference Compound, Reference	Not reported; Not reported; 1.6; Not reported
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	A correlation between the extent of degradation and reactivity of compounds on the basis of their chemical structure is shown tentatively by the results of photomineralization.; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	Low	The test substance was identified by trade name, but characterization details were omitted that could affect interpretation of study results.
Metric 2:	Test Substance Purity	Low	The test substance source and purity were not explicitly reported or verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	No information was provided regarding this metric.
Metric 4:	Test Substance Stability	N/A	No information was provided regarding this metric.
Domain 3: Test Conditions			

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Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	85251

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	No information was provided but may be available in referenced sources.
	Metric 6:	Testing Conditions	N/A	No information was provided regarding this metric.
	Metric 7:	Testing Consistency	N/A	No information was provided regarding this metric.
	Metric 8:	System Type and Design	N/A	No information was provided but may be available in referenced sources.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	Little to no information was provided but may be available in referenced sources.
	Metric 12:	Test Substance Purity	N/A	Little to no information was provided but may be available in referenced sources.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	A single data point (1.6% degradation) was provided. More information may be available in the study report; however, it is illegible.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Little to no information was provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	Little to no information was provided; therefore, it is difficult to interpret the results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	680048

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, Guideline	No; Experimental, pH dependent, half-life reported, reaction rate reported; Not Reported
Solvent, Reactivity, Storage, Stability	Artificial river water; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Kishida Chemical, Osaka, Japan; Liquid; Analytical grade
Duration and Test Temperature	140 days; 0.4 - 27.4 deg C; average = 10.8 deg C
Light Source, Intensity, and additional light details	Natural sunlight; 17.1 - 242.8 W/m^2 (reflecting moderate autumn and winter Japan temperate zone); Not Reported
Source Wavelength Lower and Upper	NR; Not Reported
Test Details and Control	30 mL solution at pH 5.0, 6.0, 7.0, 8.0, or 9.0, placed in 50 mL pyrex glass test tube and sealed with rubber stopper. Tubes kept on the roof of a building at Osaka University, Japan (34 N, 135 E) from September 2004 to March 2005.; Test tube prepared the same but wrapped in aluminum foil.
Initial Concentration and Reference Compound	0.35 mmol/L; NR
Substance Wavelength Lower and Upper	NR; NR
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; Not Reported; 390 d (pH 5), 550 d (pH 6), 1600 d (pH 7), 700 d (pH 8), 460 d (pH 9)
Indirect Rate Constant Lower and Upper	Not Reported; Not Reported
Method Details Results and Products Details Results	HPLC UV-Vis at 254 nm; NR
Parameter Value and Parameter Results	Not Reported; Test substance disappearance
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	NR; NR; NR; NR
Results Remarks, Sample time Results, Results Details	NA; NA; Rate constant: 1.8E-3 /d (pH 5), 1.3E-3 /d (pH 6), 4.4E-4 /d (pH 7), 9.9E-4 /d (pH 8), 1.5E-3 /d (pH 9)Dark control half-life: 840 d (pH 5), 1300 d (pH 6), negligible loss (pH 7), 1000 d (pH 8), 830 d (pH 9)

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test substance source was reported, the purity was reported qualitatively as analytical grade.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Dark controls were included and results were reported and within an appropriate range.
Metric 4:	Test Substance Stability	Medium	Test substance storage was not reported; preparation and stirring by ultrasonication was reported and appropriate.

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Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	680048

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its water solubility, but was treated with an ultrasonicator to ensure homogenization.
	Metric 6:	Testing Conditions	High	Appropriate test conditions (pH, light intensity, temperature) were reported. Temperature and light intensity fluctuations were wide but because the study took place outdoors, this possible effect to rates may better reflect environmental behavior.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for determining photolytic loss.
	Metric 12:	Test Substance Purity	High	Sampling frequency was reported graphically (approximately every 10 days) and was appropriate for rate determination.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability was not accounted for, one replicate per condition was apparently used.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limit of detection and extraction efficiency were not reported. Raw data was reported graphically only.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations (first order) were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but the results were on the higher end of estimated photolysis half-lives previously reported (74 - 550 days); however, the test substance was tested above its water solubility.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Low

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	not reported; not reported
Light Source, Intensity, and additional light details	artificial & natural sunlight; 72,000 (artificial); 83,000 (natural); Not Reported
Source Wavelength Lower and Upper	Not Reported; Not Reported
Test Details and Control	optimum pH 6.0; stimulated by the presence of TiO2 and H2O2.; not reported
Initial Concentration and Reference Compound	not reported; Not Reported
Substance Wavelength Lower and Upper	Not Reported; Not Reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Rate Constant Lower and Upper	Not Reported; 0.9/h
Method Details Results and Products Details Results	Not Reported; Not Reported
Parameter Value and Parameter Results	Not Reported; not reported
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not Reported; Not Reported; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	half-life = 0.75 hours; not reported; photodegradation rates were higher in natural water than in simulated systems.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was not reported but may be available in the cited reference.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	There was no information on the test consistency but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, information may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but the information may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, the data may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly; however, this information may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

* Related References: cites: HERO ID: 5348008 Jin Z,Huang G, Chai Y, Zhong Y,Wang D, Li H (1999) Huanjing Huaxue 18:109 (Chinese)

Study Citation:	Zarean, M., Bina, B., Ebrahimi, A., Pourzamani, H., Esteki, F. (2015). Degradation of di-2-ethylhexyl phthalate in aqueous solution by advanced oxidation process.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5650174

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)-phthalate
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): aqueous degradation rates measured in the presence of UV and UV/ozone
Solvent, Reactivity, Storage, Stability	stock solution dissolved in a mixture of methanol and deionized water (1:100) was established at a concentration of 100 mg/L; NR; Stored at 4°C, diluted to 5 mg/L before use; NR
Radiolabel, Source, State, Purity	No; Sigma-Aldrich Chemicals, analytical standard, Fluka; NR; analytical grade Notes: DEHP
Duration and Test Temperature	contact times: 5, 10, 15, 20, and 30 minutes; 25±3°C (pH 7)
Light Source, Intensity, and additional light details	UV lamp; 7.1 w/m2; 150 W high-pressure mercury-vapor lamp
Source Wavelength Lower and Upper	254 nm; not reported
Test Details and Control	UV lamp fixed at the center of the reactor, cooling via temperature controlled bath under batch reactor; ozone flow rate (100 mg/h) and 500 ml of DEHP solution (5 mg/L).; Ozone only
Initial Concentration and Reference Compound	5 mg/L; Ozone
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Rate Constant Lower and Upper	not reported; not reported
Method Details Results and Products Details Results	DEHP extraction form water solutions via SPE, analysis via GC/MS; not reported
Parameter Value and Parameter Results	Not Reported; not reported
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Ozone; DEHP ozone only degradation reaction constants (/min) = zero order: 0.0071 (r-squared 0.933), first order: 0.0241 (r squared 0.894); second order: 0.017 (r squared 0.847); 43% DEHP removal for UV only; 80% DEHP removal for UV/ozone; not reported
Results Remarks, Sample time Results, Results Details	DEHP UV only degradation reaction constants (/minute) = zero order: 0.0046 (r-squared 0.716), first order: 0.0172 (r squared 0.753); second order: 1.0134 (r squared 0.793); DEHP UV/ozone degradation reaction constants (/min) = zero order: 0.0262 (r squared 0.941), first order: 0.0533 (r squared 0.982); second order: 0.0259 (r squared 0.921); 30 minutes; residual concentration for UV only 4.9, 4.84, 4.7, 4.4, and 2.8 mg/L and for UV/ozone 5, 3.7, 2.7, 2.5, 1.5, 1 mg/L after 5, 10, 15, 20, and 30 minutes, respectively; residual DEHP for ozone only 5, 4.4, 3.3, 3, 2.7, 2.5 mg/L after 5, 10, 15, 20, and 30 minutes respectively

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Degradation using only ozone can be regarded as a control.

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Study Citation:	Zarean, M., Bina, B., Ebrahimi, A., Pourzamani, H., Esteki, F. (2015). Degradation of di-2-ethylhexyl phthalate in aqueous solution by advanced oxidation process.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5650174

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were limited; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Loss due to other process was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical detail limited.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results may be limited due to lack of detail and control.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Battersby, N. S., Wilson, V. (1989). Survey of the anaerobic biodegradation potential of organic chemicals in digesting sludge. Applied and Environmental Microbiology 55(2):433-439.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1598869

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; screening test; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Hopkins and Williams, Chadwell Heath, UK.; NR; Highest purity available Notes: NR
Blank and Control	Sterile controls containing autoclaved sludge and sterile test chemical; Not Reported
Oxygen and Inoculum	anaerobic; digested sludge: Reading Sewage Works (Berkshire, England); mixture of domestic and industrial(brewing, food processing, electronics) wastewaters.
Duration, Parameter, System, and Sampling Frequency	60 days; CH4 evolution: serum bottles under a headspace of 90% N2-10% CO2; weekly
pH Adjusted and pH	NR; NR
Concentration	NR NR - NR NR NR
Composition and Test Temperature	NR; 35°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; NR
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	gas chromatograph with thermal conductivity detector; % theoretical gas production; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	-5; ±9.5; Not Reported; ethanol: results not reported; 4-cresol: 96% theoretical gas production after a lag period of 7 days
Results Remarks and Results Details	Completely degraded after 4 weeks of incubation.; lag period of >77 days
Results Mean Total Recovery and Results per Recovery	NR; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Battersby, N. S., Wilson, V. (1989). Survey of the anaerobic biodegradation potential of organic chemicals in digesting sludge. Applied and Environmental Microbiology 55(2):433-439.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1598869

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described; howeverthese differences were not likely to have a substantial impact on study results.
Domain 8: Other				

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Study Citation:	Battersby, N. S., Wilson, V. (1989). Survey of the anaerobic biodegradation potential of organic chemicals in digesting sludge. Applied and Environmental Microbiology 55(2):433-439.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1598869

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Bechohra, I., Couvert, A., Amrane, A. (2015). Absorption and biodegradation of toluene: Optimization of its initial concentration and the biodegradable non-aqueous phase liquid volume fraction. International Biodeterioration & Biodegradation 104:350-355.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4280975

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Di (2-EthylHexyl) Phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: activated sludge batch cultures
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Acros organic (Geel, Belgium); NR; NR Notes: DEHP
Blank and Control	blank was included; not reported
Oxygen and Inoculum	not specified; activated sludge, domestic (adaptation not specified): Beaurade wastewater treatment plant of Rennes, France
Duration, Parameter, System, and Sampling Frequency	not reported; test mat: Erlenmeyer flasks containing activated sludge nutrients and toluene, DEHP, water, closed caps; predetermined intervals
pH Adjusted and pH	yes; 7±0.2
Concentration	0.1 - 5 %
Composition and Test Temperature	KH2PO4; Na2HPO4; NH4Cl; MgSO4; CaCl2; ZnSO4; MnSO4; CuSO4; (NH4)2Fe(SO4)2; 25 deg C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; co-degraded with toluene; toluene concentrations were 43-430 mg/L
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-FID; % degradation of 0.1% DEHP at toluene concentrations of 43 and 106 mg/L; up to 83%
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	68.9% and 87.0%; not reported; 7 days; Not Reported
Results Remarks and Results Details	2-ethylhexanol and 2-ethylhexanal were detected; At 5% DEHP, a lag time of 3-4 days was observed, 21% degradation was reported after 7 days. At 2% DEHP, there was no noticeable lag time, 21% degradation after 7 days. 46.7% degradation at 0.5% and 7 days. 92.4% degradation at 0.1% and 7 days.
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Bechohra, I., Couvert, A., Amrane, A. (2015). Absorption and biodegradation of toluene: Optimization of its initial concentration and the biodegradable non-aqueous phase liquid volume fraction. International Biodeterioration & Biodegradation 104:350-355.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4280975

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).

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Study Citation:	Bechohra, I., Couvert, A., Amrane, A. (2015). Absorption and biodegradation of toluene: Optimization of its initial concentration and the biodegradable non-aqueous phase liquid volume fraction. International Biodeterioration & Biodegradation 104:350-355.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4280975

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679312

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; diethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	No; screening test; experimental; other: Detection of test substance in ten-day toxicity tests
Solvent, Reactivity, Storage, Stability	water; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical (Milwaukee, WI, USA); NR; 99% Notes: NA
Blank and Control	water control; KCl as a reference toxicant
Oxygen and Inoculum	aerobic; water (not specified): Freshwater benthos containing H. azteca, C. tentans, and L. variegatus
Duration, Parameter, System, and Sampling Frequency	10 days; test mat.: glass aquiria; 0, 4, 7 and 10 days
pH Adjusted and pH	Not Reported; 7.62–7.94
Concentration	0.0477±0.0241 - 0.0691±0.0296 mg/L
Composition and Test Temperature	Dechlorinated municipal water from the city of Superior (Superior, WI, USA) water was passed through a bed of charcoal, and sodium sulfite, and cation exchange resin removed trace metals. Total organic carbon = 2.2 mg/L, total hardness and alkalinityranged from 42.8 to 54.6 and 44.8 to 51.4 mg/L as CaCO3, respectively.; 21.8–23.4
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; Dissolved oxygen = 6.1–7.8 mg/L; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	high performance liquid chromatography using a column of either Lichrospher 100 RP-18 or 5 mm Lichrospher 100 CN, detector wavelengths of 274 and 224 nm; NR; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; NR; 10 days; NR
Results Remarks and Results Details	Supporting information about the 10-day LC50 of test substance to freshwater benthos. Reported log Kow and water solubility values cited from Staples et al. 1997.; Not Reported
Results Mean Total Recovery and Results per Recovery	expressed concentrations were not corrected for recoveries; Mean recovery ranged between 94.3 and 126.3%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			

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Study Citation:	Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679312

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups relevant to fate or transport endpoints that consequently made the study unusable.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment methodology addressed or reported the intended outcome(s) of interest; however, toxicity (LD50) information is not a relevant environmental fate or transport endpoint.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	concentrations of the target chemical or transformation product, extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).

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Study Citation:	Call, D. J., Markee, T. P., Geiger, D. L., Brooke, L. T., Vandeventer, F. A., Cox, D. A., Genisot, K. I., Robillard, K. A., Gorsuch, J. W., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 1. Aqueous exposures. Environmental Toxicology and Chemistry 20(8):1798-1804.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679312

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Uninformative

Study Citation:	Chang, B. V., Liao, G. S., Yuan, S. Y. (2005). Anaerobic degradation of di-n-butyl phthalate and di-(2-ethylhexyl) phthalate in sludge. Bulletin of Environmental Contamination and Toxicology 75(4):775-782.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	357771

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Closed bottle batch anaerobic biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA, USA); NR; 99.0%
Blank and Control	Sterile control included; autoclaved at 121°C for 20 min; Not reported
Oxygen and Inoculum	anaerobic; anaerobic sludge: Sewage and petrochemical sludge investigated
Duration, Parameter, System, and Sampling Frequency	28 days; test mat.: Bottles capped with rubber stoppers wrapped in aluminum and placed in an anaerobic glove box; Periodically
pH Adjusted and pH	Not Reported; 5.0, 6.0, 7.0, 8.0, 9.0; assessed separately for each inoculum
Concentration	1 - 5 µg/g
Composition and Test Temperature	NH4Cl, MgCl2(aq), CaCl2(aq), FeCl2(aq), K2HPO4, KH2PO4, resazurin; 20, 30, 40, 50°C; assessed separately for each inoculum
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; yes; Not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	LOD=100 ug/L; % disappearance of test material; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	100%; ± 3.22 (petrochemical sludge)±2.2 (sewage sludge); 21 days (petrochemical sludge) 28 days (sewage sludge); < 5% degradation after 28 days in petrochemical sludge; < 6% degradation after 28 days in sewage sludge; at 30°C and pH 7.0
Results Remarks and Results Details	100% degradation after 21 days in petrochemical sludge; 100% degradation after 28 days in sewage sludge; at 30°C and pH 7.0; details on variable conditions provided in source, t1/2 ranged from 3.3 to 16.1 days; First-order degradation rate constant 0.111/day; half-life=6.2 days
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				

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Study Citation:	Chang, B. V., Liao, G. S., Yuan, S. Y. (2005). Anaerobic degradation of di-n-butyl phthalate and di-(2-ethylhexyl) phthalate in sludge. Bulletin of Environmental Contamination and Toxicology 75(4):775-782.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	357771

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail on analytical method; however, this is not likely to hinder the results.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product(s) concentrations (if required), extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis reported and acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; ready biodegradability; experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): activated sludge from a region where DEHP is produced
Duration, Parameter, System, and Sampling Frequency	29 days; % CO2 evolution: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % CO2 evolution; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	82; not reported; 29 days; not reported
Results Remarks and Results Details	not reported; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

* Related References: Reference cited: [ECHA] European Chemicals Agency. c2007–2014f. Registered substances database. Search for CAS RN 117-81-7 [DEHP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=6&_registeredsubstances_WAR_regsubsportlet_javax.portlet.action=registeredSubstancesAction

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; primary biodegradability; experimental; other: Primary biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): not reported
Duration, Parameter, System, and Sampling Frequency	24 hours; % degradation: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % degradation; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	81.5; not reported; 24 hours; not reported
Results Remarks and Results Details	>91% degradation reached within 2-5 days; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 3: Test Conditions				

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

* Related References: O'Grady DP, Howard PH, Werner AF. 1985. Activated sludge biodegradation of 12 commercial phthalate esters. Appl Environ Micro 49(2):443–5. In: EURAR 2003a.; not available at time of extraction

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; ready biodegradability; experimental; OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): not reported
Duration, Parameter, System, and Sampling Frequency	28 days; % BOD: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % BOD; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	63; not reported; 28 days; not reported
Results Remarks and Results Details	an 8-day lag phase was reported; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 3: Test Conditions				

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

* Related References: Reference cited: [ECHA] European Chemicals Agency. c2007–2014f. Registered substances database. Search for CAS RN 117-81-7 [DEHP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=6&_registeredsubstances_WAR_regsubsportlet_javax.portlet.action=registeredSubstancesAction

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; ready biodegradability; experimental; EU Method C.5 (Degradation: Biochemical Oxygen Demand): EU Method C.5 (Degradation: Biochemical Oxygen Demand) from EG-guideline 79/831
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): activated sludge from industrial source
Duration, Parameter, System, and Sampling Frequency	28 days; % BOD: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % BOD; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	60-70; not reported; 28 days; not reported
Results Remarks and Results Details	not reported; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 3: Test Conditions				

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

* Related References: Reference cited: [ECHA] European Chemicals Agency. c2007–2014f. Registered substances database. Search for CAS RN 117-81-7 [DEHP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=6&_registeredsubstances_WAR_regsubsportlet_javax.portlet.action=registeredSubstancesAction

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; ready biodegradability; experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): not reported
Duration, Parameter, System, and Sampling Frequency	28 days; % CO2 evolution: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % CO2 evolution; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	4-5; not reported; 28 days; not reported
Results Remarks and Results Details	not reported; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 3: Test Conditions				

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

* Related References: Reference cited: Struijs and Stoltenkamp 1990 (not available at time of extraction); [ECHA] European Chemicals Agency. c2007–2014f. Registered substances database. Search for CAS RN 117-81-7 [DEHP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view&p_p_col_id=column-1&p_p_col_pos=1&p_p_col_count=6&_registeredsubstances_WAR_regsubsportlet_javax.portlet.action=registeredSubstancesAction

Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	none; primary biodegradability; experimental; other: Primary biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	not reported; activated sludge (adaptation not specified): not reported
Duration, Parameter, System, and Sampling Frequency	48 hours; % degradation: not reported; not reported
pH Adjusted and pH	not reported; not reported
Concentration	not reported not reported - not reported not reported
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; % degradation; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	91; not reported; 48 hours; not reported
Results Remarks and Results Details	>91% degradation reached within 2-5 days; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 3: Test Conditions				

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Study Citation:	EC/HC, (2015). State of the science report: Phthalate substance grouping: Medium-chain phthalate esters: Chemical Abstracts Service Registry Numbers: 84-61-7; 84-64-0; 84-69-5; 523-31-9; 5334-09-8;16883-83-3; 27215-22-1; 27987-25-3; 68515-40-2; 71888-89-6.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3688160

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method is suitable.
	Metric 6:	Testing Conditions	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 7:	Testing Consistency	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 8:	System Type and Design	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum was reported with limited details; however, further details may be provided in source cited.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 12:	Test Substance Purity	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were not reported in this gray literature source; however, further details may be provided in source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Gray literature source citing ECHA profile.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

* Related References: Graham 1973 (HERO ID: 59522, not available at time of extraction)

Study Citation:	Fountoulakis, M. S., Stamatelatou, K., Batstone, D. J., Lyberatos, G. (2006). Simulation of DEHP biodegradation and sorption during the anaerobic digestion of secondary sludge. Water Science and Technology 54(4):119-128.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679510

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Fluka; NR; 97% Notes: DEHP
Blank and Control	Not Reported; Not Reported
Oxygen and Inoculum	anaerobic; digested sludge: secondary feed sludge from municipal STP
Duration, Parameter, System, and Sampling Frequency	280 day; COD: single-step anaerobic system; varying HRT times throughout the test; Not reported
pH Adjusted and pH	no; 6.8-7.5
Concentration	5.1 - 36.16 mg/L
Composition and Test Temperature	Not Reported; 35 deg C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; Not applicable; Not Reported; 38 g/L TSS, 24 g/L VSS, 240 mg/L dissolved COD and 34 g/L total COD
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	HPLC-UV; relative standard deviation 12.93%; detection limit 0.297 mg/L; estimated k1 (ratio of specific maximum consumption rate to the saturation constant) and k2 (mass transfer coefficient) using least squares with units of gCOD^-1d^-1; COD; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; various; not reported
Results Remarks and Results Details	k1=0.03561, k2=0.004151 biomass dependent; k1=0.0207, k2=0.002931 for non-biomass dependent. Uptake rate and saturation constant of acetate 6.28 Â±0.0547 kgCOD/m3/d and 0.0387 Â±0.0547 kgCOD/m3; for propionate 8.61 Â±1.53 kgCOD/m3/d and 0.0496 Â±0.07821 kgCOD/m3.; Not Reported
Results Mean Total Recovery and Results per Recovery	96.8%; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and structure.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Some concurrent control group details were not included and likely to impact the results study results.

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Study Citation:	Fountoulakis, M. S., Stamatelatou, K., Batstone, D. J., Lyberatos, G. (2006). Simulation of DEHP biodegradation and sorption during the anaerobic digestion of secondary sludge. Water Science and Technology 54(4):119-128.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679510

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and extraction efficiency were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.

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Study Citation:	Fountoulakis, M. S., Stamatelatou, K., Batstone, D. J., Lyberatos, G. (2006). Simulation of DEHP biodegradation and sorption during the anaerobic digestion of secondary sludge. Water Science and Technology 54(4):119-128.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679510

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Low

Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	85251

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; Not reported; Experimental; other: NR; described in previous publications
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Most 14C-labeled chemicals were purchased; others synthesized in testing lab; NR; ≥98%
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	aerobic; activated sludge, domestic, non-adapted: Adapted to synthetic medium
Duration, Parameter, System, and Sampling Frequency	Not reported; CO2 evolution: Procedure simulates processes in nature whereby intermittently low concentrations of chemicals occur; Not reported
pH Adjusted and pH	Not Reported; Not reported
Concentration	Not reported - Not reported
Composition and Test Temperature	Not reported; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; no; Not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not reported; % CO2 evolution; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	4.0; Not reported; Not reported; Not reported
Results Remarks and Results Details	Not reported; The effect of the sludge on the compound is measured by the distribution of the test chemical between sludge and water and its conversion and degradation to CO2
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	Low	The test substance was identified by trade name but characterization details were omitted that could affect interpretation of study results; however, the omission was not likely to have a substantial impact on the study results.
	Metric 2: Test Substance Purity	Low	The test substance source and purity were not explicitly reported or verified by analytical means.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	No information was provided.

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Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	85251

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Uninformative	No information was provided about the test substance.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Uninformative	No details about the test method were provided.
	Metric 6:	Testing Conditions	Uninformative	No information regarding the testing conditions were provided.
	Metric 7:	Testing Consistency	Uninformative	Critical exposure details across samples were not reported and these omissions resulted in serious flaws that had a substantial impact on the overall confidence, consequently making the study unusable.
	Metric 8:	System Type and Design	N/A	No information was provided.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	The test inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	No information was provided.
	Metric 12:	Test Substance Purity	N/A	No information was provided.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The target chemical degradation as % CO2 evolution was reported and sufficient evidence was presented to confirm the parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No information was provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	Reported value was consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Fujita, M., Ike, M., Ishigaki, T., Sei, K., Jeong, J. S., Makihira, N., Lertsirisopon, R. (2005). Biodegradation of Three Phthalic Acid Esters by Microorganisms from Aquatic Environment. Nihon Mizushori Seibutsu Gakkaishi 41(4):193-201.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490395

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Primary biodegradation in sludge, river water, and pond water
Solvent, Reactivity, Storage, Stability	Ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kishida Reagent Co., Osaka; NR; Analytical grade
Blank and Control	Controls without the inoculum; Controls with inoculum and no test substance; Controls were included.
Oxygen and Inoculum	aerobic; other:: Tests run in activated sludge, river water, and pond water. Activated sludge was collected from domestic sewage treatment plants and water samples were collected from two rivers and three ponds and were not acclimatized.
Duration, Parameter, System, and Sampling Frequency	14 days (2 weeks); test mat.: Plugged flasks; Days 0, 1, 4, 7, 10, and 14
pH Adjusted and pH	Not Reported; 7.2
Concentration	$\geq$ 10 - $\leq$ 40 mg/L
Composition and Test Temperature	artificial river water: K2HPO4: 21.8mg; KH2PO4: 8.5mg; Na2HPO4-12H20: 44.6mg; NH4Cl: 17mg; MgSO4-7H20: 22.5 mg; CaCl2: 27.5mg; FeCl3-6H20: 0.25mg; MnSO4-5H20: 0.71mg; ZnSO4-7H20: 0.01mg; CuSO4-5H20: 5mg; CoCl2 6H20: 5mg; 1L water.; 28°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; The flask was closed and not aerated after the start of the sampling period. The flasks were shaken (120 rpm) over 2 weeks.; yes; Mixed liquor suspended solids for activated sludge: 100 mg/L; 25 mg/L for river and water samples.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	HPLC (UV-8010 spectrophotometric detector). Samples mixed with ethanol (0.5 mL). PAE's were detected at wavelength of 254 nm. Metabolites were detected with LC-MS (QP8000a).; Primary biodegradation as % removed to the initial concentration: Activated Sludge, River Water Microbes, Pond Water Microbes; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	100%, 100%, 100%; Not reported; 2 weeks; No significant change was observed
Results Remarks and Results Details	All samples underwent primary biodegradation. Blank tests showed no significant di-ethylhexyl phthalate contamination and controls without inoculum showed no significant degradation.; Half-lives for primary degradation were less than 5 days (results shown in scatter plots). Activated sludge samples degraded to below detection limits within 10 d. Similar capacity of PAE biodegradation rates were observed in river and pond water samples.
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks and controls were used.

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Study Citation:	Fujita, M., Ike, M., Ishigaki, T., Sei, K., Jeong, J. S., Makihira, N., Lertsirisopon, R. (2005). Biodegradation of Three Phthalic Acid Esters by Microorganisms from Aquatic Environment. Nihon Mizushori Seibutsu Gakkaishi 41(4):193-201.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490395

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The test conditions were consistent across the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum types were described and were appropriate for the test.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The sampling methods and frequency were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	No confounding variables were noted. Uncertainty was not reported in the measurements but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The data reporting was sufficient and evidence was provided to show the test substance disappearance was not due to another process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	A first order kinetic model was used to describe the biodegradation rates.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Fujita, M., Ike, M., Ishigaki, T., Sei, K., Jeong, J. S., Makihira, N., Lertsirisopon, R. (2005). Biodegradation of Three Phthalic Acid Esters by Microorganisms from Aquatic Environment. Nihon Mizushori Seibutsu Gakkaishi 41(4):193-201.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490395

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Ultimate biodegradation in sludge, river water, and pond water
Solvent, Reactivity, Storage, Stability	Ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kishida Reagent Co., Osaka; NR; Analytical grade
Blank and Control	Blanks without the test substance were analyzed.; Controls were included.
Oxygen and Inoculum	aerobic; other:: Tests were done using microbes from activated sludge, river water, and pond water as inoculum. Activated sludge was collected from domestic sewage treatment plants and water samples were collected from two rivers and three ponds and were not acclimatized.
Duration, Parameter, System, and Sampling Frequency	14 days (2 weeks); ThOD: Plugged flasks; Days 0, 1, 4, 7, 10, and 14
pH Adjusted and pH	Not Reported; 7.2
Concentration	$\geq$ 10 - $\leq$ 40 mg/L
Composition and Test Temperature	artificial river water: K2HPO4: 21.8mg; KH2PO4: 8.5mg; Na2HPO4 12H20: 44.6mg; NH4Cl: 17mg; MgSO4 78H20: 22.5 mg; CaCl2: 27.5mg; FeCl 6H20: 0.25mg; 1L water.; 28°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; The flask was closed and not aerated after the start of the sampling period. The flasks were mixed with magnetic mixers (900 rpm).; yes; Biochemical oxygen demand was measured. The DEHP concentration was 40mg/L in activated sludge test and 10mg/L in the river and pond water test.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	BOD analyzer (DDK, Tokyo) was used to determine ultimate biodegradation. HPLC (UV-8010 spectrophotometric detector). Samples mixed with ethanol (0.5 mL). PAE's were detected at wavelength of 254 nm. Metabolites were detected with LC-MS (QP8000a).; Ultimate Biodegradation as % of O2 consumption relative to ThBOD: Activated Sludge, River Water Microbes, Pond Water Microbes; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Ranges estimated from figure: 35-70%, 20-40% , 15-25%; Not reported; 2 weeks; Results adjusted for the results of the control test.
Results Remarks and Results Details	Ultimate biodegradation was not achieved in any of the samples within the 14 day test period.; Ultimate biodegradation half-life (days) in activated sludge microbes 11-23; river water microbes: 20-36; and pond water microbes: 38-50 (all estimated from figure).
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks and controls were used.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Fujita, M., Ike, M., Ishigaki, T., Sei, K., Jeong, J. S., Makihira, N., Lertsirisopon, R. (2005). Biodegradation of Three Phthalic Acid Esters by Microorganisms from Aquatic Environment. Nihon Mizushori Seibutsu Gakkaishi 41(4):193-201.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490395

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The test conditions were consistent across the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum types were described and were appropriate for the test.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The sampling methods and frequency were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	No confounding variables were noted. Uncertainty was not reported in the measurements but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was sufficient and evidence was provided to show the test substance disappearance was not due to another process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	A first order kinetic model was used to describe the biodegradation rates.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Hashizume, K., Nanya, J., Toda, C., Yasui, T., Nagano, H., Kojima, N. (2002). Phthalate esters detected in various water samples and biodegradation of the phthalates by microbes isolated from river water. Biological and Pharmaceutical Bulletin 25(2):209-214.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679647

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dibutyl phthalate
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: biodegradation in river water
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Wako Pure Chemical Industries Co., Ltd. (Osaka, Japan); NR; >99.5%
Blank and Control	blank; not reported
Oxygen and Inoculum	not specified; natural water: Tempaku River water collected in November 1999
Duration, Parameter, System, and Sampling Frequency	7 days; not specified: tested as previously reported with a minor modification of the Handai Method.; not reported
pH Adjusted and pH	not reported; not reported
Concentration	20 ug/mL
Composition and Test Temperature	nutrient broth medium.; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; Not Reported; details may be outlined in cited method.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC/FID; HPLC; % degradation; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; not reported; 7 days; not reported
Results Remarks and Results Details	Water samples from 2 sites and results were 73.5% in Otokiki Bridge samples; 68.1% in Chidori Bridge samples.; Not Reported
Results Mean Total Recovery and Results per Recovery	95%; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Concurrent control group details were not included; however, this data may be available in the cited materials.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Hashizume, K., Nanya, J., Toda, C., Yasui, T., Nagano, H., Kojima, N. (2002). Phthalate esters detected in various water samples and biodegradation of the phthalates by microbes isolated from river water. Biological and Pharmaceutical Bulletin 25(2):209-214.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679647

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were not directly discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Hashizume, K., Nanya, J., Toda, C., Yasui, T., Nagano, H., Kojima, N. (2002). Phthalate esters detected in various water samples and biodegradation of the phthalates by microbes isolated from river water. Biological and Pharmaceutical Bulletin 25(2):209-214.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	679647

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

Study Citation:	Jonsson, S., Ejlertsson, J., Svensson, B. H. (2003). Transformation of phthalates in young landfill cells. Waste Management 23(7):641-651.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	789568

EXTRACTION

Parameter	Data
CASRN and Test Material	not reported; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	none; other; experimental: field study; other: Non-guideline: degradation in a landfill simulation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Merck Eurolab (Stockholm, Sweden); Present in solid waste material; NR Notes: Initial composition of solid waste in cells unknown.
Blank and Control	not reported; not reported
Oxygen and Inoculum	cell 1995: methanogenic, cell 1996: cell had passed both early and intense acidogenic phase and was entering early methanogenic phase, cell 1997: acidogenic; other:: Solid waste from 10 municipalities in Sweden.
Duration, Parameter, System, and Sampling Frequency	not specified; test material: Landfill cells were constructed over a period of 8 to 10 weeks in July and August of 1995, 1996, and 1997, and loaded with 9, 11, and 12 thousand metric tons of waste.; 12 leachate samples were collected on 5 occasions;four from cell 1997, five from cell 1996 and three from cell 1995; well samples 95/96 collected from where leachate discharged
pH Adjusted and pH	no; cell 1995 - acidic to neutral; cell 1996 nearly neutral; cell 1997 acidic pH; well 95/96 pH >7
Concentration	Not Reported
Composition and Test Temperature	Cell 1995 was saturated with water; to cell 1996 ca. 4000 m3 water added; water was not added to cell 1997.; ambient
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; darkness assumed; Solid waste in cells covered with 1 meter of clay
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Solid-phase extraction followed by GC-MS; LOQ ca. 1 µg/L; not reported; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; std dev 20%; not reported; not reported
Results Remarks and Results Details	Cell 1995: DEHP concentration fluctuated from 1-12 µg/L; monoester monobutyl phthalate decreased from 29 µg/L to ≤ LOQ; phthalic acid concentration decreased from 18 µg/L to 1 µg/L. Cell 1996: DEHP concentration fluctuated from 3 µg/L to 24 µg/L; monoester monobutyl phthalate increased from 40 to 180 µg/L; phthalic acid concentration fluctuated from 5 mg/L to 50 µg/L. Cell 1997: DEHP concentration increased from 14 to 30 µg/L over the first 5 months and remained after 4 more months of sampling; monoesters and phthalic acid concentrations were below the LOQ during the initial sampling campaign; however, all were present after 5 months.; not reported
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Low	The source of the test substance was a solid waste material with unknown composition; test material source is not routinely used.
Domain 2: Test Design				

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Study Citation:	Jonsson, S., Ejlertsson, J., Svensson, B. H. (2003). Transformation of phthalates in young landfill cells. Waste Management 23(7):641-651.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	789568

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	N/A	Landfill simulation study; no control groups reported.
	Metric 4:	Test Substance Stability	N/A	Not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Initial target chemical concentrations were reported.
	Metric 6:	Testing Conditions	Low	Limited detail regarding conditions.
	Metric 7:	Testing Consistency	Medium	Test conditions across study groups were not reported.
	Metric 8:	System Type and Design	High	The system type and design were acceptable for this study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Inoculum source is not routinely used.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information on test material source, evaluation of the reasonableness of the study results was not possible. In addition, other phthalates were present.
	Metric 18:	QSAR Models	N/A	Not applicable to this study.

Overall Quality Determination — Medium

Study Citation:	Kotowska, U., Karpinska, J., Kapelewska, J., Kowejsza, E. M., Piotrowska-Niczyporuk, A., Piekutin, J., Kotowski, A. (2018). Removal of phthalates and other contaminants from municipal wastewater during cultivation of Wolffia arrhiza. Process Safety and Environmental Protection 120:268.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5508730

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; bis(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: removal via cultivation of plants
Solvent, Reactivity, Storage, Stability	methanol; NR; −20°C for not longer than two weeks; NR
Radiolabel, Source, State, Purity	None; Sigma-Aldrich, Germany; NR; NR Notes: DEHP
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; other:: Wolffia arrhiza obtained from Toxicology Division of Biological-Chemical Department of University of Bialystok, Poland.
Duration, Parameter, System, and Sampling Frequency	14 days; test mat: Not Reported; 7 and 14 days
pH Adjusted and pH	Not Reported; 7.0
Concentration	58.41 - 64.29 ug/L
Composition and Test Temperature	Wastewater: collected from the local WWTP in Lomza, Poland; 25±0.5°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; no; day/night cycle 16/8 hours
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC/MS; linearity range 0.1–100 ug/L; R2 0.998; limit of detection 0.02 ug/L; RSD 5.4%; % removal; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	97.7%; not reported; 7 days; not reported
Results Remarks and Results Details	conventional WWTP reduction was 58.1%; removal of nutrients (75–78%) and reduction of oxygen demand (93–97%)
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Metric 4:	Test Substance Stability	High	The test substance preparation, and storage conditions were reported.

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Study Citation:	Kotowska, U., Karpinska, J., Kapelewska, J., Kowejsza, E. M., Piotrowska-Niczyporuk, A., Piekutin, J., Kotowski, A. (2018). Removal of phthalates and other contaminants from municipal wastewater during cultivation of Wolffia arrhiza. Process Safety and Environmental Protection 120:268.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5508730

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Kotowska, U., Karpinska, J., Kapelewska, J., Kowejsza, E. M., Piotrowska-Niczyporuk, A., Piekutin, J., Kotowski, A. (2018). Removal of phthalates and other contaminants from municipal wastewater during cultivation of Wolffia arrhiza. Process Safety and Environmental Protection 120:268.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5508730

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Li, B., Chi, J., Wu, W., Wang, Z. (2007). Effect of nutrients and light on biodegradation of dibutyl phthalate and di-2-ethylexyl phthalate in Haihe Estuary. Bulletin of Environmental Contamination and Toxicology 79(1):80-83.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	698291

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in natural water
Solvent, Reactivity, Storage, Stability	Methanol (analytical grade, Tianjin Third Reagent Manufactory); NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Corporation, USA; NR; 99.9%
Blank and Control	Sterile controls were performed by adding formaldehyde (1.3% final concentration); Not reported
Oxygen and Inoculum	aerobic; natural water: Exp I, II, III, IV: Total nitrogen (mg/L): 12.8, 12.8, 4.6, 4.6. Total phosphorus (mg/L): 1.05, 1.05, 0.02, 0.02.
Duration, Parameter, System, and Sampling Frequency	4 days; test mat.: Flask; Samples taken at 0, 8, 24, 36, 48, and 96 hours
pH Adjusted and pH	Not Reported; Exp. I, II, III, IV: 8.7, 8.5, 8.2, 8.1, respectively.
Concentration	$\geq$ 176 - $\leq$ 216 µg/L
Composition and Test Temperature	Half of the flasks (Experiments I and II) had additional nitrogen and phosphorus added.; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; Exp. I: light (4000 lux); N:P=12; SPM=81 mg/L; Exp II same as I Exp 1, in darkness; Exp III: light; N:P=230; SPM=76 mg/L; Exp IV: Same as Exp III, no light.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Gas chromatograph with flame ionization detector (GC-FID); DEHP concentration; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	K (1/day) for Exp I, II, III, and IV, respectively: 0.082, 0.10, 0.069, 0.072; No standard deviation reported. First order kinetic equation fit the biodegradation data with a correlation coefficient >0.9566.; Not reported; Not reported
Results Remarks and Results Details	Control tests showed only 0.9-9.8% loss of DEHP was from non-biotic processes. Increased N and P stimulated biodegradation.; Not reported
Results Mean Total Recovery and Results per Recovery	88.2%; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by common name.
Metric 2:	Test Substance Purity	High	The test substance was 99.9% pure.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were used.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported.
Domain 3: Test Conditions			

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Study Citation:	Li, B., Chi, J., Wu, W., Wang, Z. (2007). Effect of nutrients and light on biodegradation of dibutyl phthalate and di-2-ethylexyl phthalate in Haihe Estuary. Bulletin of Environmental Contamination and Toxicology 79(1):80-83.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	698291

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	Testing conditions were monitored and consistent; any variations were reported.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and the inoculum was sufficiently characterized.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling frequency was reported and appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The percent recovery and extraction efficiency were not reported but their omission is not likely to impact the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	The kinetic calculation was not reported and statistical analysis was minimal; however, the omissions are not likely to impact the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Long, K. W. J., Brown, D. (1994). Di-2-ethylhexyl phthalate and di-isodecyl phthalate: Determination of biodegradability.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11327989

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; DEHP
Confidentiality, EndPoint, Type, Guideline	no; ready biodegradability; Experimental; other: NR; Based on the Official Journal of European Communities, section C.4-C
Solvent, Reactivity, Storage, Stability	Acetone; NR; deep freeze conditions; NR
Radiolabel, Source, State, Purity	14-C labeled DEHP; Merck (UK) or Sigma, ICI Physics & Radioisotopes (Cambridge Research Biochemicals); NR; "Analar grade"; radiochemical purity >94.9 % for 14C=O and >93.3% for 14C ring Notes: NR
Blank and Control	Glucose control; 1 mL stock solution of unlabeled glucose containing 1.125 mg of glucose was mixed with 167 uL of stock solution of 14C glucose containing 0.125 mg of glucose.; NR
Oxygen and Inoculum	aerobic; other:: Set 1. 17.9 L of deionized water, 18 mL of each mineral salt solution (a-c), 180 mL of the mineral salt solution (d) and 200 mL of secondary effluent inoculum from a laboratory scale activated sludge plant treating predominantly domestic sewage.
Duration, Parameter, System, and Sampling Frequency	28 days; Test material: Flow-through air system with liquid traps before the test vessel to remove CO2 from and humidify the influent air. Traps placed after the test vessel were to trap volatile organic substances and to trap any evolved CO2; at 1, 3, 7, 10, 14, 20 and 28
pH Adjusted and pH	yes; initial pH measured 8.0-8.2 and was adjusted to the required range of 7.0-7.6; 7.0-7.6
Concentration	0.1 - mg phthalate in 1 mL DMF
Composition and Test Temperature	deionised water, mineral salt solutions (calcium chloride, magnesium sulphate heptahydrate, ferric chloride hexahydrate, phosphate buffer (pH 7.2), potassium dihydrogen phosphate, dipotassium hydrogen phosphate, disodium hydrogen phosphate heptahydrate, ammonium chloride), inoculum; 20.0-21.1 deg C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; Systems were allowed to run through with aeration while test solutions were prepared; NR; NR
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Liquid Scintillation counting; Beckman LS5801 Spectrometer; 14-CO2 evolution (as % total applied activity); NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	55-82%; 57.5% in 28 days based on 14CO2 as a percentage of applied activity or 69% in activity recovered; NR; 28 days; the Glucose positive control achieved 60% biodegradation in 5 days and reached an apparent plateau of 80% biodegradation
Results Remarks and Results Details	NR; NR
Results Mean Total Recovery and Results per Recovery	NR; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means (chemical analysis, etc.)
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Positive controls were included.

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Study Citation:	Long, K. W. J., Brown, D. (1994). Di-2-ethylhexyl phthalate and di-isodecyl phthalate: Determination of biodegradability.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11327989

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable
	Metric 6:	Testing Conditions	High	The test conditions were reported.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Some system type and design details were not reported to confirm that the system was capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling details were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Monsanto, (1976). Biodegradabilty of plasticizers.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790484

EXTRACTION

Parameter	Data
CASRN and Test Material	Not reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; inherent biodegradability; Experimental; other: Semi-Continuous Activated Sludge (Analytical Chemistry Method 71-32)
Solvent, Reactivity, Storage, Stability	ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; Not Reported
Oxygen and Inoculum	aerobic; activated sludge, domestic, non-adapted: mixed liquor (activated sludge and supernatant) 2500 mg/L suspended solids concentration)
Duration, Parameter, System, and Sampling Frequency	primary degradation evaluated during one weekly cycle; test material concentration: magnetically-stirred vessel; not reported
pH Adjusted and pH	not reported; not reported
Concentration	= 3 - = 3 ppm added per cycle
Composition and Test Temperature	300 mg glucose, 200 mg nutrient broth, 130 mg K2HPO4; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; typical aeration cycle 23-167 hours; not reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Analytical method GC with FID or UV: Analytical Chemistry method No. AC-72-M-4; % primary biodegradation; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Primary degradation rate = 70% (at 3 ppm); 78% (at 3 ppm); ±11% (at 3 ppm); ±3% (at 3 ppm); not reported; not reported
Results Remarks and Results Details	% primary biodegradation calculated based on the equation: (Co-Cn)/Cox100; not reported
Results Mean Total Recovery and Results per Recovery	89.9±6.4% recovery from mixed liquor extraction; not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not reported.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Monsanto, (1976). Biodegradabilty of plasticizers.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790484

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum was appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No reported variability or uncertainty included.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Study summary only; not a complete study. Analytical method reported; MDL, percent recovery, and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Std deviation and kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited information; however, study results were reasonable based on data provided.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

Study Citation:	Monsanto, (1976). Biodegradabilty of plasticizers.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790484

EXTRACTION

Parameter	Data
CASRN and Test Material	Not reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; inherent biodegradability; Experimental; other: Rive Die-Away test
Solvent, Reactivity, Storage, Stability	ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	sterile control included; not reported
Oxygen and Inoculum	aerobic; natural water: Settled river water from Meramec or Mississippi Rivers supernatant
Duration, Parameter, System, and Sampling Frequency	ca. 6 weeks; test material concentration: sealed bottles; not reported
pH Adjusted and pH	not reported; not reported
Concentration	= 1 - ppm
Composition and Test Temperature	Not Reported; ambient
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; yes; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Analytical method GC with FID or UV: Analytical Chemistry method No. AC-72-M-4; days required for 50% primary biodegradation; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	50%/24 days; not reported; not reported; not reported
Results Remarks and Results Details	primary biodegradation half-life = 24 days; not reported
Results Mean Total Recovery and Results per Recovery	89.9±6.4% recovery from mixed liquor extraction; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were reported.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.

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Study Citation:	Monsanto, (1976). Biodegradabilty of plasticizers.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790484

Domain	Metric		EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum was appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No reported variability or uncertainty included.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Study summary only; not a complete study. Analytical method reported; MDL, percent recovery, and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Std deviation and kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited information; however, study results were reasonable based on data provided.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Screening test; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	NR; activated sludge (adaptation not specified)
Duration, Parameter, System, and Sampling Frequency	NR; Carbon content: NR; NR
pH Adjusted and pH	NR; NR
Concentration	34.1 - 38.7 mg/L
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; CO2; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	4-5%; Not Reported; 28 d; Not Reported
Results Remarks and Results Details	Not Reported; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Bennett SR et al; Environmental Hazards of Chemical Agent Simulants CRDC-TR-84055, Aberdeen Proving Ground, MD (1984)HEROID not located.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Other; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; natural water: Groundwater impacted by di(2-ethylhexyl) phthalate, ethylbenzene, and xylenes
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; NR
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Half-life = 60 - 70 hours; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Graves DA et al; Appl Biotechnol Site Remed, Hinchee RE et al, eds, Lewis Publ: Ann Arbor, MI (1994) HEROID not located.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Other; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	NR; Not Reported: NR
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Static culture flask
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; BOD; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Almost completely bio-oxidized after 3 weeks.; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Bennett SR et al; Environmental Hazards of Chemical Agent Simulants CRDC-TR-84055, Aberdeen Proving Ground, MD (1984)HEROID not located.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; natural water: River water
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Not Reported; Half-life = 4.5 wk
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain	Metric		EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Wams TJ; Sci Total Environ 66: 1-16 (1987)HEROID 683857 or 5709309

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported: River die-away
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; natural water
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Half-lives reported for 3 references ranges from 2 to 3 weeks.; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Wolfe NL et al. Environ Sci Technol 14: 1143-4 (1980); Hattori Y et al. Pollut Control Cent Osaka Prefect Mizu Shori Gijutsu 16: 951-4 (1975); Saeger VW, Tucker ES. Appl Environ Microbiol 31: 29-34 (1976) http://www.safe.nite.go.jp/english/db.htmlSaeger data previously extracted, Wolfe and Hattori were not previously extracted. (Wolfe et al. 1980); 5353188 (Hattori et al. 1975); 790777 (Saeger et al. 1976).

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I))
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; activated sludge (adaptation not specified)
Duration, Parameter, System, and Sampling Frequency	4 weeks; Test material: NR; NR
pH Adjusted and pH	NR; NR
Concentration	100 - mg/L
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; thBOD; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	69%; Not Reported; 4 weeks; Not Reported
Results Remarks and Results Details	Not Reported; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: NITE; Chemical Risk InformationPlatform (CHRIP). Biodegradation and Bioconcentration. Tokyo, Japan: Natl Inst Tech Eval. Available from, as of Dec 23, 2014:http://www.safe.nite.go.jp/english/db.htmlHEROID 10176833

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; sewage, domestic (adaptation not specified)
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Degradation products: 2-ethylhexanol, 2-ethylhexanal, and 2-ethylhexanoic acid; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Pham TTH et al; Chemosphere 82: 923-928 (2011) HEROID 1249424

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Aerobic; natural water: Hydroponic soil
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Not Reported; Half-life = 14 d
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Wams TJ; Sci Total Environ 66: 1-16 (1987)HEROID 683857 or 5709309

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Anaerobic; Not Reported: NR
Duration, Parameter, System, and Sampling Frequency	35-100 d; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; Methane production; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0%; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	No methane production observed; NR
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Ejlertsson J et al; Environ Sci Technol 31: 2761-4 (1997) HEROID 5754517

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Anaerobic; Not Reported: NR
Duration, Parameter, System, and Sampling Frequency	330 d; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; 37 deg C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	6% degradation; 94% remained.; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	More methane was produced in the blank than the test system.; NR
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Ejlertsson J, Svensson BH; Biodegradation 7: 501-6 (1996) HEROID 5755272

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Anaerobic; other:: Municipal solid waste samples
Duration, Parameter, System, and Sampling Frequency	278 d; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR -
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0%; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	No degradation observed.; NR
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Ejlertsson J et al; Biodegradation 7: 345-52 (1996) HEROID 5556571

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; NR; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	Anaerobic; activated sludge (adaptation not specified): Reading sludge
Duration, Parameter, System, and Sampling Frequency	60 d; organic carbon: NR; NR
pH Adjusted and pH	NR; NR
Concentration	25 - 200 mg C/L
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; theoretical gas production; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	48, 26, 19, and 6% at 25, 50, 100, and 200 mg C/L, respectively; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Lag periods: 24, 45, 28, and > 60 days at 25, 50, 100, and 200 mg C/L, respectively; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Battersby NS, Wilson V; Chemosphere 17: 2441-60 (1988) HERO ID 2215615

Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5492430

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biotransformation in digester sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Services (West Chester, PA); NR; 98-99%
Blank and Control	Sterile inoculated control: 0% degraded after 29 d; Toxicity experiments using pure culture P. aeruginosa, B. subtilis, and E. coli suggests PAEs did not significantly affect growth or activity at concentrations used in this study.
Oxygen and Inoculum	anaerobic; digested sludge: Anaerobic digester sludge was collected from the South River sewage treatment plant in Fulton County, GA.
Duration, Parameter, System, and Sampling Frequency	63 days; test mat.: 200 mL sterile medium was added to an anaerobic chamber with inoculum (10% w/v or v/v). 5mL aliquots were added to centrifuge tubes and aliquots of PAE solution were added.; at day: 0, 8, 29, 63
pH Adjusted and pH	Not Reported; 7.0
Concentration	200 µmol/L
Composition and Test Temperature	10% (w/v or v/v) test material in an inoculum mineral medium. Final gas atmosphere was N2 or N2-CO2.; 30°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; No shaking. Glassware was cleaned with hexane to reduce contamination. Nitrate, carboxy methylcellulose, adsorption, and reamendment studies were also run to explore influences on biotransformation rates
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	PAE's were spiked and 3x extracted with HPLC grade hexane (performed in triplicate). Partitioning to sediments were examined by centrifugation and separate hexane extraction. Extracts examined by GC (Hewlett Packard 5890A) with flame ionization detector.; % remaining test material (DEHP) after /n days (n total 63); Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	100% (0% bioconversion); Not reported; 63 days; 109% remaining after 29d. Sterile control
Results Remarks and Results Details	DEHP did not degrade in anerobic digester sludge. Additional experiments indicated that adsorption of PAE's to sediment was rapid: >50% in initial samples and 63% of DEHP was associated with the sediment phase.; 0% of DEHP disappeared after 63 days
Results Mean Total Recovery and Results per Recovery	Not reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	The study used appropriate controls.
Metric 4:	Test Substance Stability	Medium	The test substance storage conditions and preparation were reported and appropriate.
Domain 3: Test Conditions			

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Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5492430

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	Medium	The testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and type were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported for all of the concentration measurements but was for the extraction efficiencies.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported but the data is available for an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5492430

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biotransformation in anaerobic leachate
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Services (West Chester, PA); NR; 98-99%
Blank and Control	Sterile inoculated control: 12% degraded after 365 d; Toxicity experiments using pure culture P. aeruginosa, B. subtilis, and E. coli suggests PAEs did not significantly affect growth or activity at concentrations used in this study.
Oxygen and Inoculum	anaerobic; other:: Anaerobic leachate obtained from a lab-scale, simulated landfill digester filled with municipal refuse and amended with specific organic pollutants.
Duration, Parameter, System, and Sampling Frequency	1 year; test mat.: 200 mL sterile medium was added to an anaerobic chamber with inoculum (10% w/v or v/v). 5mL aliquots were added to centrifuge tubes and aliquots of PAE solution were added.; at day: 0, 61, 365
pH Adjusted and pH	Not Reported; 7.0
Concentration	200 µmol/L
Composition and Test Temperature	10% (w/v or v/v) test material in an inoculum mineral medium. Final gas atmosphere was N2 or N2-CO2.; 30°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; No shaking. Glassware was cleaned with hexane to reduce contamination. Nitrate, carboxy methylcellulose, adsorption, and reamendment studies were also run to explore influences on biotransformation rates
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	PAE's were spiked and 3x extracted with HPLC grade hexane (performed in triplicate). Partitioning to sediments were examined by centrifugation and separate hexane extraction. Extracts examined by GC (Hewlett Packard 5890A) with flame ionization detector.; % remaining test material (DEHP) after /n days (n total 365); Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	87% (13% bioconversion); Not reported; 61 days; 88% remaining after 61d. Sterile control
Results Remarks and Results Details	DEHP did not degrade after 61 days. Additional experiments indicated that adsorption of PAE's to sediment was rapid: >50% in initial samples and 63% of DEHP was associated with the sediment phase.; 0% of DEHP disappeared after 61 days
Results Mean Total Recovery and Results per Recovery	Not reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	The study used appropriate controls.
Metric 4:	Test Substance Stability	Medium	The test substance storage conditions and preparation were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5492430

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	Medium	The testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and type were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported for all of the concentration measurements but was for the extraction efficiencies.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported but the data is available for an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; primary biodegradation; experimental; other: river die-away
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; natural water: freshwater: Rhine River water
Duration, Parameter, System, and Sampling Frequency	Not Reported; Not Reported: shake flasks; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	ca 1 ug/L
Composition and Test Temperature	Not Reported; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; first-order rate constant; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.2/day; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	half-life 3.5 days; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites HEROID: 10748712: Furtmann K (1993) Phthalate in der aquatischen Umwelt. PhD Thesis, Universität Gesamthochschule Duisenberg. English Translation prepared for European Council for Plasticizers and Intermediates, Brussels, 1996. (not in distiller)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; primary biodegradation; experimental; other: river die-away
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; natural water: freshwater: Mississippi River water
Duration, Parameter, System, and Sampling Frequency	not reported; not specified: unstirred; not reported
pH Adjusted and pH	not reported; not reported
Concentration	1 mg/L
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; yes; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; first-order rate constant; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.023/day; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	half-life 30 days; Value calculated from data presented in the referenced paper.
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2: Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design			
	Metric 3: Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4: Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Low	The test method was not reported but may be available in the cited reference. Applied target chemical concentrations were greater than the aqueous solubility.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites data already entered under HEROID: 790777: Saeger VW, Tucker ES (1976) Appl Environ Microbiol 31 :29

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; primary biodegradation; experimental; other: river die-away
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; natural water: freshwater: Mississippi River water
Duration, Parameter, System, and Sampling Frequency	not reported; not specified: unstirred; not reported
pH Adjusted and pH	not reported; not reported
Concentration	1 mg/L
Composition and Test Temperature	not reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; yes; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; first-order rate constant; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.023/day; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	half-life 30 days; Value calculated from data presented in the referenced paper.
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2: Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design			
	Metric 3: Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4: Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Low	The test method was not reported but may be available in the cited reference. Applied target chemical concentrations were greater than the aqueous solubility.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites and Data already entered under HEROID: 790777: Saeger VW, Tucker ES (1976) Appl Environ Microbiol 31 :29

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; biodegradation; experimental; other: anaerobic degradation in sewage sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; anaerobic microorganisms: anaerobic sewage sludge
Duration, Parameter, System, and Sampling Frequency	32 days; Not Reported: Not Reported; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	5 - 10 mg/L
Composition and Test Temperature	Not Reported; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	did not measurably degrade; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	The test method was not reported but may be available in the cited reference.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites HEROID: 6813682: Ziogou K, Kirk PWW, Lester JN (1989) Water Res 23 :743. (not in distiller)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, EndPoint, Type, Guideline	Not Reported; Not Reported; Not Reported; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Blank and Control	Not Reported; Not Reported
Oxygen and Inoculum	Not Reported; Not Reported
Duration, Parameter, System, and Sampling Frequency	Not Reported; Not Reported: Not Reported; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	Not Reported
Composition and Test Temperature	Not Reported; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Not Reported; anaerobic degradation in laboratory systems; after 178 days 19% removal observed
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2: Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design			
	Metric 3: Study Controls	Medium	Controls were not reported but may be available in the cited reference.
	Metric 4: Test Substance Stability	Medium	Controls were not reported but may be available in the cited reference.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Medium	The test method was not reported but may be available in the cited reference.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Medium	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — NEED TO FIX

* Related References: Cited from Ejlertsson J,Houwen FP, Svensson BH (1996) Swed J Agric Res 26 :53 (HERO ID 1315796, not in distiller at the time of extraction) Ejlertsson J,Meyerson U, Svensson BH (1996) Biodegradation 7:345 (HERO ID 5556571, in distiller at the time of extraction) Data very close to data already extracted under HERO ID 5556571, difficult to tell due to multiple sources being referenced for same endpoint. Ejlertsson J, Svensson BH (1996) Biodegradation 7:501 (HERO ID 5755272 and 679474, not in distiller at the time of extraction)

Study Citation:	Price, K. S., Waggy, G. T., Conway, R. A. (1974). Brine shrimp bioassay and seawater BOD of petrochemicals. Water Environment and Technology 46(1):63-77.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	31087

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	Oxygen demand from nitrification was corrected by analyses of nitrogen species throughout the course of the test.; Not reported
Oxygen and Inoculum	aerobic; sewage, domestic, non-adapted: Settled domestic wastewater filtered through glass wool and added at 3mL/bottle.
Duration, Parameter, System, and Sampling Frequency	20 days; COD: Biochemical oxygen demand bottles with half aerated dilution water.; Days 5, 10, and 20.
pH Adjusted and pH	Not Reported; Not reported
Concentration	$\geq$ 3 - $\leq$ 10 mg/L
Composition and Test Temperature	Dilution water with minerals and buffer; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Water was reaerated when dissolved oxygen dropped below 4.0mg/L.; no; 3, 7, and 10 mg/L.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Dissolved oxygen was measured periodically using a commercial dissolved oxygen meter with an agitation probe. Nitrification samples were screened by UV absorption with colorimetric tests following if absorption in 160-240 mμ was detected.; % bio-oxidized=100 x [Oxygen uptake in sample (mg/L) - oxygen uptake in blank (mg/L)]/[initial DEHP concentration (mg/L) x Theoretical oxygen demand]; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Days 5, 10, and 20: 0%; Not reported; Not Reported; Not reported
Results Remarks and Results Details	No biodegradation was observed after 20 days.; In an acclimated system (supernatant water taken from a 45-60 day incubation of soil, wastewater, river water, and biologically treated petrochemical effluent), DEHP bio-oxidation was 13, 0 , 6, and 23% after 5, 10, 15, and 25 days, respectively.
Results Mean Total Recovery and Results per Recovery	Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank controls were used.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation was not reported; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Price, K. S., Waggy, G. T., Conway, R. A. (1974). Brine shrimp bioassay and seawater BOD of petrochemicals. Water Environment and Technology 46(1):63-77.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	31087

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	The test substance was tested above its aqueous solubility which may have an impact on the study results.
Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Metric 7:	Testing Consistency	High	There were no reported deviations in conditions across the duplicate groups.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	High	The inoculum type is reported and appropriate for the study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology was reported and appropriate.
Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Low	Uncertainty was not reported in any of the measurements which may have an impact on the study results.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	High	The analytical method was appropriate.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Low	Due to limited information the reasonableness of the study results could not be evaluated.
Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316257

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: non-guideline biodegradation study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Polyscience, Niles, IL, USA; NR; ≥98%
Blank and Control	Blank controls; Not reported
Oxygen and Inoculum	aerobic; natural water: freshwater: Rhine river
Duration, Parameter, System, and Sampling Frequency	10 days; test mat.: flask; 0, 1, 3, 7 and 10 days
pH Adjusted and pH	Not Reported; Not reported
Concentration	4 µg/L
Composition and Test Temperature	Not applicable; 4 and 20°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; river water; yes; Not applicable
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-ECD; % degradation of test substance; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	< 30% (approx.) after 10 days at 20°C and minimal degradation at 4°C; Not reported; 10 days; Not reported
Results Remarks and Results Details	Not applicable; Graph of data presented
Results Mean Total Recovery and Results per Recovery	Not applicable; 88% for suspended particulate matter and 87% from water

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Sterile controls were not reported.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316257

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	There were omissions in test method detail; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 6:	Testing Conditions	Low	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Limited details were reported in testing consistency; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 8:	System Type and Design	Medium	Limited details regarding test system type and design; however, sufficient data were reported to determine were not likely to have had a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were omissions in details; however, the omissions were not likely to have had a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	There were omissions in the calculation details; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316257

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

* Related References: Cited in ECHA

Study Citation:	Rubin, H. E., Subba-Rao, R. V., Alexander, M. (1982). Rates of mineralization of trace concentrations of aromatic compounds in lake water and sewage samples. Applied and Environmental Microbiology 43(5):1133-1138.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334012

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[Carboxyl-14-C] Di(2-ethylhexyl) phthalate (2.7 mCi/mmol); California Bionuclear Corp., Sun Valley, California.; NR; NR
Blank and Control	Not reported; NaCN amended samples were used to determine abiotic losses (volatilization and adsorption to incubation vessel). No abiotic losses were detected.
Oxygen and Inoculum	aerobic/anaerobic; natural water: Beebe Lake (eutrophic), Cayuga Lake (mesotrophic), and White lake (oligotrophic).
Duration, Parameter, System, and Sampling Frequency	Not reported; radiochem. meas.: DEHP in acetone was added to flask and acetone was allowed to evaporate before addition of lake water (glass fiber filtered to remove particles).; Not reported
pH Adjusted and pH	Not Reported; NR
Concentration	$\geq$ 0.001 - less than 1 µg/L
Composition and Test Temperature	Lake water; 29 C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; yes; Tests were done in triplicate.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Scintillation counting in solution after 14-CO2 was removed by bubbling.; Reduction in solution radioactivity; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	No mineralization detected in White Lake water, immediate mineralization in Beebe lake water.; Not reported; Not reported; Not reported
Results Remarks and Results Details	Precise DEHP removal percentages were not reported.; DEHP mineralization kinetics not reported.
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	High	An appropriate control group was used in the study.
Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation were not reported but the omissions are unlikely to have had a substantial impact on the study results.

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Study Citation:	Rubin, H. E., Subba-Rao, R. V., Alexander, M. (1982). Rates of mineralization of trace concentrations of aromatic compounds in lake water and sewage samples. Applied and Environmental Microbiology 43(5):1133-1138.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334012

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported changes between the sample groups that would impact the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Some details regarding the inoculum were not reported and may have an impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some details regarding the sampling method were not reported but the omissions are unlikely to have had a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were not reported in the study and they may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or percent degradation was not reported, preventing meaningful interpretation of the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and the omissions impact the usefulness of the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The reported results were qualitative only; therefore, evaluating the reasonableness of the results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: CO2 evolution test; modified Sturm
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Monsanto Co.; NR; Commercial grade Notes: NR
Blank and Control	sterile control bottle received no test material; NR
Oxygen and Inoculum	aerobic; sewage, domestic (adaptation not specified): Domestic sewage obtained from a local treatment plant; inoculum seed prepared using the Bunch-Chalmers die-away procedure. Flasks were stored in the dark under quiescent conditions at room temperature for 14 days; after the 14-day period, 500 mL of inoculum solution was mixed to form a composite seed; 500 ml of composite seed was mixed with 5,500 mL of biological oxygen demand water in a CO2 evolution bottle.
Duration, Parameter, System, and Sampling Frequency	27 days; CO2 evolution: Apparatus and procedure developed by Thompson and Duthie; NR
pH Adjusted and pH	NR; NR
Concentration	NR NR - NR NR NR
Composition and Test Temperature	20 mg of test material, 50 mg of yeast extract, 100 mL of the DEHP-acclimated, activated sludge supernatant, and 900 mL of the standard biological oxygen demand dilution water; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; yes; CO2 values from controls were subtracted from test values.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	CO2 was trapped as barium carbonate and quantitated by titration with 0.1 N HCl; % of theoretical CO2; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	86.16% (based on theoretical CO2 = 303.4 mg); Not Reported; NR; Not Reported
Results Remarks and Results Details	Biodegradation based on % carbon = 73.81 (112.2 mg test material); NR
Results Mean Total Recovery and Results per Recovery	NR; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source and relative purity (commercial grade) were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterile controls were included.

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Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	Medium	Sampling method was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; primary biodegradability; experimental; other: Soap and Detergent Associated 24-h semicontinuous procedure and modified feed.
Solvent, Reactivity, Storage, Stability	ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Monsanto Co.; NR; Commercial grade Notes: NR
Blank and Control	blank SCAS unit with materials at each concentration.; NR
Oxygen and Inoculum	NR; sewage, domestic (adaptation not specified): Domestic sewage obtained from a local treatment plant.
Duration, Parameter, System, and Sampling Frequency	24 h; test material: magnetically stirred 1.5-liter glass vessel.; initial t=0, and 24 hours
pH Adjusted and pH	NR; NR
Concentration	= 5 - mg/24 hours (addition rate)
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; 50 mL samples of activated sludge mixed liquor were withdrawn after feeding and after 24 h of exposure; test material addition rate of 5 mg/24 hour evaluated in duplicate.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	FID/GC; Test material; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	70%; 78%; ±11%; ±3%; NR; >99% at 20 mg/24 h addition rate
Results Remarks and Results Details	no significant volatility loss was observed; NR
Results Mean Total Recovery and Results per Recovery	NR; 74±5%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified.
	Metric 2: Test Substance Purity	High	The source and relative purity (commercial grade) were reported.
Domain 2: Test Design			
	Metric 3: Study Controls	High	Sterile controls were included.
	Metric 4: Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable.
	Metric 6: Testing Conditions	Medium	Some testing conditions were reported.

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Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Reported testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	Medium	Sampling method was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: Non-guideline: degradation in river water
Solvent, Reactivity, Storage, Stability	ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Monsanto Co.; NR; commercial grade Notes: NR
Blank and Control	Sterile river water controls were included to verify the decrease in test material was due to biodegradation and not other physical or chemical factors.; NR
Oxygen and Inoculum	NR; natural water: 6-gallon supply of water obtained from the Mississippi River (St. Louis Water front); naturally occurring mixed microbial inoculum
Duration, Parameter, System, and Sampling Frequency	5 weeks; test material: 16-ounce screw-cap bottles; NR
pH Adjusted and pH	unamended river water pH = 7.5; NR
Concentration	= 50 - ug/uL
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; 200-mL of supernatant was withdrawn and added to the 16 oz screw-cap bottles. four microliter portions of test material ethanol solution (50 ug/uL) was injected into the bottle. The bottle was sealed with a foil lined cap, mixed by swirling, and stored in the dark at room temperature.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Flame-ionized gas chromatography; extracted three times with hexanes; Test material; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	~62% degraded after 5 weeks (based on Figure 2); Not Reported; NR; 100% degraded after ~1.3 weeks (based on Figure 2)
Results Remarks and Results Details	Not Reported; NR
Results Mean Total Recovery and Results per Recovery	NR; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source and relative purity (commercial grade) were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterile controls were included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				

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Study Citation:	Saeger, V. W., Tucker, E. S. (1976). Biodegradation of phthalic acid esters in river water and activated sludge. Applied and Environmental Microbiology 31(1):29-34.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	790777

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	Medium	Sampling method was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Data was reported in the form of a graph with no numerical reference to data.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — Medium

Study Citation:	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	680132

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	aerobic; activated sludge, domestic (adaptation not specified): mixed with mineral medium
Duration, Parameter, System, and Sampling Frequency	28 days; CO2 evolution: Sturm test vessels; Regular intervals, starting after 30 minutes
pH Adjusted and pH	Not Reported; Not reported
Concentration	15 - mg organic carbon
Composition and Test Temperature	Not reported; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Carbon analyzer TOC 500; CO2 evolution; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	81%; Not Reported; 28 days; 84%/28d, met 10-d window.
Results Remarks and Results Details	Average of two replicates; Readily biodegradable; Reported to meet the 10-d window based on degradation plot. Reference substance = sodium benzoate.; Trial 1: 0%/0.5h, 0%/1d, 0%/4d, 0%/8d, 430%/14d, 63%/18d, 72%/22d, 80%/25d, 80%/28d,78%/29d; Trial 2: 0%/0.5h, 0%/1d, 1%/4d, 35%/8d, 67%/14d, 76%/18d, 73%/22d, 84%/25d, 81%/28d,85%/29d; Average: 0%/0.5h, 0%/1d, 1%/4d, 18%/8d, 49%/14d, 70%/18d, 73%/22d, 82%/25d, 81%/28d,82%/29d
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported but unlikely to have substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent positive control was included and the results were valid.

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Study Citation:	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	680132

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions reported but sufficient data were reported to determine that these omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				

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Study Citation:	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	680132

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Shelton, Boyd, S. A., Tledje, J. M. (1984). Anaerobic biodegradation of phthalic acid esters in sludge. Environmental Science & Technology 18(2):93-97.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490812

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biodegradation in diluted sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich, Milwaukee, WI; NR; 97%
Blank and Control	Sterilized and unamended controls; Not reported
Oxygen and Inoculum	anaerobic; activated sludge, domestic, non-adapted: 10% solution in primary anaerobic sludge from Jackson sewage treatment plant, Jackson, MI.
Duration, Parameter, System, and Sampling Frequency	70 days; test mat.: HPLC; Samples were taken on days 0, 7, 14, 21, 28, 42, and 70
pH Adjusted and pH	Not Reported; Not reported
Concentration	20 mg/L
Composition and Test Temperature	A mineral salts medium was added to the solution. Dilute sludge tests were done at 10% sludge v/v and undiluted tests were done with 6 L sludge.; 35°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Oxygen purged with 10% CO2/90% N2 mixture; Not Reported; Bis(2-ethylhexyl) phthalate was the only PAE indigenous to the Jackson sludge and was present at <5 mg/L.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Samples extracted with hexane; after phase separation samples were analyzed in GC-FID (Varian 3700) with a fused silica capillary column. Methane gas in the headspace was quantified in GC-FID (Perkin-Elmer 900). Net methane production was calculated based on controls. LOD for the PAE's was ca. 0.5 ppm.; DEHP removal %; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	No significant removal or degradation observed for DEHP 10% diluted sludge.; Not Reported; 70 days; 100% degradation in 10% diluted sludge; >90% BBP degraded in 40 d
Results Remarks and Results Details	9% theoretical CH4 recovered; Not reported
Results Mean Total Recovery and Results per Recovery	Recoveries were consistently >100%, authors not this is likely due to excess initial additions.; 100%

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterilized controls were used.
	Metric 4:	Test Substance Stability	Medium	Some of the details regarding the test substance storage and preparation were not reported but the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Shelton, Boyd, S. A., Tledje, J. M. (1984). Anaerobic biodegradation of phthalic acid esters in sludge. Environmental Science & Technology 18(2):93-97.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5490812

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty in the measurements was not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	No statistical analysis was presented but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are plausible as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316198

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Non-guideline shake flask carbon dioxide evolution biodegradation study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	one blank and one glucose control; Not applicable
Oxygen and Inoculum	aerobic; other:: soil from Berry Park, Syracuse, NY and raw, domestic, influent sewage microorganisms from Meadowbrook Limestone Treatment Plant, Fayetteville, NY
Duration, Parameter, System, and Sampling Frequency	28 days; CO2 evolution: flasks, darkened, shaken; Days 2, 6, 9, 14, 21, 28
pH Adjusted and pH	Not Reported; 7 ±0.2
Concentration	See other field
Composition and Test Temperature	Mineral salts media; 22±2°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; aerated distilled water; yes; Test substance concentration was the equivalent to 4 mg carbon at the start of acclimation
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-FID; % primary biodegradation; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	>99% after 28 days; raw data, averages, and S.D. reported; 28 days; t1/2=3.38 days
Results Remarks and Results Details	Primary biodegradation in 28 days; Degradation still occurring after 28 days for some study replicates (that were less than 99% on day 28)
Results Mean Total Recovery and Results per Recovery	73-105; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, the test substance was identified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterile controls were used.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				

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Study Citation:	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316198

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this review article.

Overall Quality Determination — High

Study Citation:	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316198

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; Ultimate biodegradation; Experimental; other: Non-guideline shake flask carbon dioxide evolution biodegradation study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	one blank and one glucose control; Not applicable
Oxygen and Inoculum	aerobic; other:: soil from Berry Park, Syracuse, NY and raw, domestic, influent sewage microorganisms from Meadowbrook Limestone Treatment Plant, Fayetteville, NY
Duration, Parameter, System, and Sampling Frequency	28 days; CO2 evolution: flasks, darkened, shaken; Days 2, 6, 9, 14, 21, 28
pH Adjusted and pH	Not Reported; 7 ±0.2
Concentration	See other field
Composition and Test Temperature	Mineral salts media; 22±2°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; aerated distilled water; yes; Test substance concentration was the equivalent to 4 mg carbon at the start of acclimation
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-FID; % Theoretical CO2 evolution; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	85.5% in 28 days (average, S.D. 11); raw data, averages, and S.D. reported; 28 days; t1/2=3.38 days
Results Remarks and Results Details	Primary biodegradation in 28 days; Degradation still occurring after 28 days for some study replicates (that were less than 99% on day 28)
Results Mean Total Recovery and Results per Recovery	73-105; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, the test substance was identified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were used.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.

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Study Citation:	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316198

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this review article.

Overall Quality Determination — High

Study Citation:	SRC, (1984). Activated sludge biodegradation of 12 commercial phthalate esters contract No. PE-17.0-ET-SRC.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316206

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Non-guideline; 19 day die away test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	blank and diethylene glycol control; Not reported
Oxygen and Inoculum	aerobic; activated sludge, adapted: mixed culture from a SCAS procedure
Duration, Parameter, System, and Sampling Frequency	19 days; test mat.: SCAS unit; 0, 1, 2, 3, 4, 5, 9, 12, 15 and 19 days
pH Adjusted and pH	Not Reported; Not reported
Concentration	1 - 3 mg/L
Composition and Test Temperature	Mineral nutrient solution; 23°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Aerated tap water; Not reported; Not applicable
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-ECD; half-life; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.46 days (average); 0.20 days; 19 days; 69% DOC removal (average, range from 66 to 71%).
Results Remarks and Results Details	Not applicable; k=1.1-2.7 days^-1
Results Mean Total Recovery and Results per Recovery	Not applicable; 97-98%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, the test substance was identified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile and reference controls were used.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	SRC, (1984). Activated sludge biodegradation of 12 commercial phthalate esters contract No. PE-17.0-ET-SRC.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316206

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this review article.

Overall Quality Determination — High

* Related References: Same data reported in HERO ID 679791.

Study Citation:	Stasinakis, A., Petalas, A., Mamais, D., Thomaidis, N. (2008). Application of the OECD 301F respirometric test for the biodegradability assessment of various potential endocrine disrupting chemicals. Bioresource Technology 99(9):3458-3467.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	698261

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)
Solvent, Reactivity, Storage, Stability	HPLC grade methanol (Merck, Germany); NR; stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Aldrich, WI, USA; NR; 99%
Blank and Control	biotic control for endogenous respiration; None
Oxygen and Inoculum	aerobic; activated sludge, domestic (adaptation not specified): Activated sludge from municipal WWTS in Mytilene, Lesvos, with mineral medium
Duration, Parameter, System, and Sampling Frequency	28 days; ThOD: Sensomat system; Not reported
pH Adjusted and pH	Not Reported; Not reported
Concentration	35.0 mg/L
Composition and Test Temperature	KH2PO4, K2HPO4, Na2HPO4 x 12 H2O, NH4Cl, MgSO4 x 7 H2O, CaCl2, and FeCl3 x 6 H2O; 20°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; Addition of allylthiourea to prevent nitrification (deviation from protocol)
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Piezo-resistive pressure sensor; ThOD; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	58.7%; 5.7%; 28 days; rapidly biodegradable; 80.1±4.3% (BOD of ThOD)/28d (n=8)
Results Remarks and Results Details	Does not pass ready test. Lag period: 4.1±0.7 days (n= 3); Half-life: 6.9±2.6 days; k1 constant: 0.10±0.03/day
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A biotic and positive control were included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Stasinakis, A., Petalas, A., Mamais, D., Thomaidis, N. (2008). Application of the OECD 301F respirometric test for the biodegradability assessment of various potential endocrine disrupting chemicals. Bioresource Technology 99(9):3458-3467.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	698261

Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across replicates.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the test inoculum is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used sampling methods that were acceptable and addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in measurements and statistical techniques between study groups were accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Sufficient evidence was provided to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Subba-Rao, R. V., Rubin, H. E., Alexander, M. (1982). Kinetics and extent of mineralization of organic chemicals at trace levels in freshwater and sewage. Applied and Environmental Microbiology 43(5):1139-1150.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334011

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: non-guideline biodegradation study
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; Not Reported
Radiolabel, Source, State, Purity	Carboxyl-14-C DEHP (2.7mCi/mmol); Radiolabeled DEHP was from California Bionuclear Corp., Sun Valley, Calif.; NR; Unlabeled DEHP was "highest purity"
Blank and Control	Not reported; Autoclaved or KCN amended samples were tested to measure volatilization, abiotic degradation, and sorption.
Oxygen and Inoculum	aerobic; natural water: freshwater: Water samples taken from 3 New York lakes: 1) Cayuga 2) Beebe 3) White.
Duration, Parameter, System, and Sampling Frequency	40 days; radiochem. meas.: Unlabeled DEHP in acetone was added to flask with radiolabeled additions to give 200-500 dpm/mL (for high concentration samples) or 0.2-0.3 dpm/mL (for lower concentration samples); Samples were taken roughly every 5 days but sampling frequency varied slightly across concentration groups.
pH Adjusted and pH	Not Reported; Cayuga: 6.7-7.9; Beebe: 7.4-8.7; White: 6.8
Concentration	$\geq$ 0.001 - $\leq$ 1000 µg/L
Composition and Test Temperature	Not reported; 29°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Yes; Static, without shaking.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Scintillation counting with Redis-solve MP and Aqueous Counting Scintillant; % of radioactivity loss from solution; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	White lake: no mineralization after 60 days; Beebe Lake: 35-71% after 40 days.; Variation among replicates=<5% from mean.; Not reported; 99% radioactivity recovered.
Results Remarks and Results Details	Autoclaved and toxic controls showed no signs of abiotic loss or sorption to incubation vessels.; Rate constant in Beebe Lake water (per day, at conc. of 0.021-200ng/mL): 0.028± 0.013.
Results Mean Total Recovery and Results per Recovery	93±2%; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The purity of the test substance was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate study controls were used.

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Study Citation:	Subba-Rao, R. V., Rubin, H. E., Alexander, M. (1982). Kinetics and extent of mineralization of organic chemicals at trace levels in freshwater and sewage. Applied and Environmental Microbiology 43(5):1139-1150.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334011

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Some details regarding the test substance preparation, homogeneity and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	There were no reported differences in the testing conditions between study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was reported but some details were omitted. The omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the results were reported and none of the variability was likely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and sufficient evidence was provided to show that the target chemical disappearance was due to degradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Some details regarding the kinetic calculations were not clearly described but the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	It is difficult to evaluate the reasonableness of the study results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Tabak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. Journal of Water Pollution Control Federation 53(10):1503-1518.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	9861

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis-(2-ethyl hexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Biodegradation in domestic wastewater, static-culture flask-screening
Solvent, Reactivity, Storage, Stability	Absolute ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	Synthetic medium containing 5mg yeast extract; Not reported
Oxygen and Inoculum	aerobic; sewage, domestic, non-adapted: Weekly "subcultures" involved adding fresh test samples to existing cultures to test for inoculum adaptation.
Duration, Parameter, System, and Sampling Frequency	28 days; test mat.: Static-culture in Erlenmeyer flask.; Days 7, 14, 21, and 28
pH Adjusted and pH	Not Reported; Not reported
Concentration	5 - 10 mg/L
Composition and Test Temperature	5mg/L yeast extract synthetic medium; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; yes; Homogenous suspensions of the test substance in the chilled synthetic medium were prepared in a heavy duty blender for 2 minutes.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC and TOC determinations. GC LOD: 0.1mg/L; Average loss of test substance after 7 days at 5 mg/L.; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0%; Not reported; 7 days; Not reported
Results Remarks and Results Details	Adapted cultures were tested at 14, 21, and 28 days and achieved 43, 80, and 95% degradation at 5 mg/mL. At 10 mg/L, 0, 47, 89, and 93% degradation was achieved after days 7, 14, 21, and 28, respectively.; Adaptation of the inoculum to DEHP was classified as "gradual" at both 5 and 10 mg/L.
Results Mean Total Recovery and Results per Recovery	62-149%; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	N/A	The test substance purity was not reported; however, the omission is unlikely to have an impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were used without inoculum and without substrate.

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Study Citation:	Tabak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. Journal of Water Pollution Control Federation 53(10):1503-1518.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	9861

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its aqueous solubility which may have had an impact on the study results.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The inoculum type was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of uncertainty were not reported which may impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate, percentage removal of the test substance was reported, and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Taylor, B. F., Curry, R. W., Corcoran, E. F. (1981). Potential for biodegradation of phthalic Acid esters in marine regions. Applied and Environmental Microbiology 42(4):590-595.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	789301

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Aldrich Chemical Co (Milwaukee, WI); NR; 99% pure
Blank and Control	Not applicable; Not applicable
Oxygen and Inoculum	aerobic; other:: gram-negative bacteria isolated on DMP (DMP 1-1); gram-negative bacteria isolated on DEP (DEP 4-1); gram positive bacteria isolated on DEHP (DEHP 4-1)
Duration, Parameter, System, and Sampling Frequency	Not reported; O2 consumption: Warburg apparatus; 1-2 hours after tipping the substrate
pH Adjusted and pH	Not reported; Not reported
Concentration	0.05 % (wt/vol)
Composition and Test Temperature	NaCl; MgSO4.7H20; KCl; 30Â°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not reported; Cultures were incubated with rotary shaking (200 rpm).
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-ECD; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not Reported; Not reported; 1-2 hours after tipping the substrate; Not Reported
Results Remarks and Results Details	O2 consumption (uL/h): 0 (DMP 1-1); 0 (DEP 4-1); 59 (DEHP 4-1); Not Reported
Results Mean Total Recovery and Results per Recovery	92% or better; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name
Metric 2:	Test Substance Purity	High	The source or purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	The study did not include control groups that consequently make the study unusable.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Taylor, B. F., Curry, R. W., Corcoran, E. F. (1981). Potential for biodegradation of phthalic Acid esters in marine regions. Applied and Environmental Microbiology 42(4):590-595.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	789301

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported, but are not likely to have substantial impact on the results.
Metric 7:	Testing Consistency	High	The test conditions were consistent.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	There were minor omissions, including biodegradation rate. Bacterial isolates with potential to degrade the test substance were reported, and some biodegradation products were reported.
Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	High	No confounding variables were noted.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Thomas, J. M., Yordy, J. R., Amador, J. A., Alexander, M. (1986). Rates of dissolution and biodegradation of water-insoluble organic compounds. Applied and Environmental Microbiology 52(2):290-296.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1333998

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation of DEHP in wastewater effluent.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; California Bionuclear Corp., Sun Valley, CA; Not Reported; [14C-Carboxyl]DEHP: 2.7 mCi/mmol
Blank and Control	Uninoculated abiotic control; NR
Oxygen and Inoculum	aerobic; other:: Primary effluent from sewage treatment from Ithaca, NY
Duration, Parameter, System, and Sampling Frequency	94 hr; radiochem. meas.: Trap flasks; Reported in graph
pH Adjusted and pH	Not Reported; 6.5-7.0
Concentration	10 mg/L
Composition and Test Temperature	NH4NO3; MgSO4-7H2O; KH2PO4; K2HPO4; CaCl2; FeCl3-6H2O; Na2MoO4-2H2O; Na2B4O7-10H2O; ZnSO4-H2O; MnSO4-H2O, and CuSO4-5H2O; 30°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; Unlabeled and labeled DEHP were added to a 50 mL flasks and sealed with injectable rubber stoppers. Mineralization measured by trapping 14CO2. Recovery of 14-C was determined from radioactivity present in salts solution, solvent rinse, and headspace.; yes; Flasks were shaken at 120 rpm on a rotary shaker
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC (model 392B; Perkin-Elmer Corp.) with flame-ionization detector.; radioactivity; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	66%; Not Reported; 96 hrs; Not Reported
Results Remarks and Results Details	Not Reported; 8.0 µg/mL per hour based on linear regression between 64.9 and 65.0 hours. Degradation curve between 24 and 72 hours was logarithmic (r^2 = 0.84).
Results Mean Total Recovery and Results per Recovery	94 to 86%; 94 to 86% of 14-C was recovered from uninoculated and inoculated samples, respectively, after 84 hrs.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test substance was definitively identified.
Metric 2:	Test Substance Purity	Medium	Radiolabeled DEHP was reported to be 97% pure, but purity of the unlabeled DEHP was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	An abiotic control was used, but results were not well described.

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Study Citation:	Thomas, J. M., Yordy, J. R., Amador, J. A., Alexander, M. (1986). Rates of dissolution and biodegradation of water-insoluble organic compounds. Applied and Environmental Microbiology 52(2):290-296.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1333998

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Preparation conditions were well described.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported, but their omission is not likely to effect interpretation of the results.
	Metric 7:	Testing Consistency	High	Test samples were performed in triplicate and conditions were consistent across the test groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum source was reported and typical for these kinds of tests.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were addressed and discussed in the article.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiencies and mass balance were not reported, but this is not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical and kinetic calculations were not well described, but this is not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported results appear to be reasonable for this substance and test condition.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Union Carbide, (1972). Surfactants and plasticizers completeness of biodegradation in a simulated river system with cover letter.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1335258

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; other; experimental; other: CO2 evolution test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; commercial product; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	aerobic; sewage, domestic, non-adapted: Kanawha River water
Duration, Parameter, System, and Sampling Frequency	33 days; additional test substance added thereafter and monitored for an additional 22 days (55 days total); % theoretical CO2 evolution: CO2 evolution test apparatus; day 4, 7, 12, 17, 21, 26, 33
pH Adjusted and pH	BOD-test buffer solution; 7.1
Concentration	= 0.4 - gram
Composition and Test Temperature	Kanawha River water; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not reported; yes (flask protected from light via black polyethylene covering); Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not Reported; ThCO2; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	54% CO2 evolution; not reported; day 33; Reference (Tergitol Noniconic 15-S-9, 21%/21 days
Results Remarks and Results Details	%ThCO2 after 39 days based on higher test substance dosage resulting from addition of test material after day 33.; 5%/12 days; 16%/17 days; 25%/21 days; 37%/26 days; 54%/33 days; chemical refed; 39%/39 days; 47%/ 43 days; 54%/48 days; 62%/55 days
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	The source and purity were not reported or verified by analytical means .
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent control included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Union Carbide, (1972). Surfactants and plasticizers completeness of biodegradation in a simulated river system with cover letter.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1335258

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variable noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to lack of information on analytical methods, evaluation of the reasonableness of the study results was not possible
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — High

Study Citation:	Union Carbide, (1974). Environmental impact analysis product biodegradability testing.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1335265

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di 2-ethyl hexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Union Carbide Corporation; NR; NR
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	aerobic; other:: Unacclimated microorganisms in water.
Duration, Parameter, System, and Sampling Frequency	20 days; ThOD: BOD test bottle with direct syringe injection of DEHP.; Days 5, 10, 15, 20
pH Adjusted and pH	Not Reported; Not reported
Concentration	Not Reported
Composition and Test Temperature	Not reported; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Dilution water was initially sparged with pure oxygen to 16-20 mg/L.; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	BOD/ThOD; Biochemical Oxygen Demand/Theoretical Oxygen Demand x 100; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0% after 20 days in unacclimated microorganisms. 23% in the presence of acclimated microorganisms from an industrial treatment plant for petrochemical waste.; Not reported; Not reported; Not Reported
Results Remarks and Results Details	Not Reported; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	No controls were reported in the study but the omission is unlikely to have a substantial impact on the study results.
Metric 4:	Test Substance Stability	High	Some details regarding the test substance preparation and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Union Carbide, (1974). Environmental impact analysis product biodegradability testing.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1335265

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Some testing conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	The number of replicates was not reported so testing consistency could not be evaluated.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some details regarding the inoculum were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling method were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability were not discussed and uncertainty was not reported in the measurements which may have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Some details regarding the analytical method were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data was not provided for an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Wylie, G. D., Jones, J. R., Johnson, B. T. (1982). Evaluation of the river die-away biodegradation test. Journal of Water Pollution Control Federation 54(8):1231-1236.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334310

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: non-guideline biodegradation study
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14-C labeled DEHP (7.00 mCi/mM); NR; NR; >99%
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	aerobic; natural water: freshwater: Missouri River water (Easley, Boone Country, Mo.)
Duration, Parameter, System, and Sampling Frequency	32 days; 14-CO2 evolution: 3.8-L incubation jar; Sampling intervals varied between 1-5 days.
pH Adjusted and pH	Not Reported; 8.0-8.2
Concentration	Not Reported
Composition and Test Temperature	The test medium across the 4 trials was mostly consistent and none of the factors were statistically related to biodegradation, besides suspended solids. The influence of SS was evaluated by filtering in some experiments.; Trials 1-4, respectively: 27, 22, 10, and 7°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; yes; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	14-CO2 evaluation; % Degradation of DEHP; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Unfiltered samples ranged from 11% (Trial III, 10°C) to 78% (Trial II, 22°C); Not reported; Not reported; Unfiltered samples ranged from 66% in Trial IV to 92% in Trial II
Results Remarks and Results Details	The variation of DEHP and PA biodegradation under uniform laboratory conditions suggests that the river die-away test does not yield reproducible results.; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were used but were not clearly described and the results were not clearly reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.

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Study Citation:	Wylie, G. D., Jones, J. R., Johnson, B. T. (1982). Evaluation of the river die-away biodegradation test. Journal of Water Pollution Control Federation 54(8):1231-1236.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1334310

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were reported clearly for each study group and were appropriate.
Metric 7:	Testing Consistency	High	Testing conditions were consistent across the study groups.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The inoculum and medium were appropriately described and appropriate for the study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Low	Uncertainty in the measurements were not reported and the omission may have an impact on the study results.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Some details regarding the analytical method were not reported, and the degradation of DEHP was not reported for each individual trial.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not clearly reported but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Low	Due to the range of reported values it is difficult to evaluate the reasonable of the study results.
Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Yin, R., Lin, X. G., Wang, S. G., Zhang, H. Y. (2003). Effect of DBP/DEHP in vegetable planted soil on the quality of capsicum fruit. Chemosphere 50(6):801-805.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5540685

EXTRACTION

Parameter	Data
CASRN and Test Material	84-74-2; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; anaerobic biodegradation; experimental; Not Reported: Not reported
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	Not reported; Not reported; Not reported; Not reported Notes: Not reported
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	anaerobic; digested sludge: Not reported
Duration, Parameter, System, and Sampling Frequency	Not reported; Not reported: Not reported; Not reported
pH Adjusted and pH	Not reported; Not reported
Concentration	Not reported Not reported - Not reported Not reported Not reported
Composition and Test Temperature	digested sludge; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not reported; Not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Not reported; percent removal; Not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	23-61%; Not reported; Not reported; Not reported
Results Remarks and Results Details	Not reported; Not reported
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable for gray literature source.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable for gray literature source.
Metric 4:	Test Substance Stability	N/A	Not applicable for gray literature source.
Domain 3: Test Conditions			

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Study Citation:	Yin, R., Lin, X. G., Wang, S. G., Zhang, H. Y. (2003). Effect of DBP/DEHP in vegetable planted soil on the quality of capsicum fruit. Chemosphere 50(6):801-805.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5540685

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Low	Details not reported in this gray literature source.
	Metric 6:	Testing Conditions	Low	Details not reported in this gray literature source.
	Metric 7:	Testing Consistency	N/A	Not applicable for gray literature source.
	Metric 8:	System Type and Design	Low	Details not reported in this gray literature source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details not reported in this gray literature source.
	Metric 12:	Test Substance Purity	N/A	Not applicable for gray literature source
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	Not applicable for gray literature source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this type of study
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	Not applicable for gray literature source
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for gray literature source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Details not reported in this gray literature source.
	Metric 18:	QSAR Models	N/A	Not applicable for this type of study

Overall Quality Determination — Low

* Related References: Cited to Fountoulakis MS, Stamatelatou K, Batstone DJ, Lyberatos G. Simulation of DEHP biodegradation and sorption during anaerobic digestion of secondary sludge. Water Sci Technol 2006;54:119–28

Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1249569

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline screening test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA, USA); NR; 99.0%
Blank and Control	autoclaved sterile control; None
Oxygen and Inoculum	aerobic; sewage, industrial (adaptation not specified): Sewage sludge from Neihu municipal sewage treatment plant in Taipei. Enrichment was performed to identify dominant species.
Duration, Parameter, System, and Sampling Frequency	30 days; test mat.: bioreactor; approx. every 2 days
pH Adjusted and pH	Not Reported; 7
Concentration	50 - 250 mg/kg
Composition and Test Temperature	microbial culture medium; 30°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR for sludge, just soil samples; bioreactor aerated with stone diffusers at the bottom of the reactor with 12-gauge galvanized wire; yes; Not applicable
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-ECD; test substance, DEHP; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	50 - 70% removal (after 10 days) and >99% - 85% (after 30 days); Not reported; Not reported; Not applicable
Results Remarks and Results Details	k1=0.11-0.24 days-1; t1/2=2.9-6.3 days in sludge r=0.85-0.97
Results Mean Total Recovery and Results per Recovery	98%; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterile controls were used.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported.
Domain 3: Test Conditions				

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Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1249569

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the test inoculum is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some statistical details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1333872

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Tokyo Chemical, Japan; NR; NR
Blank and Control	UV irradiation was used to sterilize one group of water samples.; Not reported
Oxygen and Inoculum	aerobic; natural water: River water (filtered with glass fiber filter) that receives domestic waste water.
Duration, Parameter, System, and Sampling Frequency	Incubation time was approximately 72 hours.; test mat.: 100mL of river water from Furu River was incubated in a 200mL flask in a water bath at 25°C.; 7 samples were taken, roughly at t=0, 4, 10, 21, 36, 46, and 72 hours.
pH Adjusted and pH	Not Reported; Not reported
Concentration	52.3 µg/L
Composition and Test Temperature	Furu river water (Toyama City, Japan). Domestic waste water flows into the river; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; no; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	A 40mL water sample was mixed with 4-trifluoromethylanilinium ion (4-ABTF+) and dodecylbenzenesulfaonate ion (DBS-). The organic phase was dissolved in 50µL of 2-methoxyethanol. Detection limit was 0.07µg/L.; Half-life (hours); Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	10; Not reported; Not reported; Not reported
Results Remarks and Results Details	Not reported; First order reaction rate: ln(Ct/Co)=-kt
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	An appropriate sterilized control was used.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1333872

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the target chemical was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions were unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The number of replicates used for the sterile and non-sterile samples were not reported, but there were no reported differences (besides UV irradiation) between the conditions.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and type were reported and appropriate for the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	No uncertainty in the measurements were reported or discussed in the results which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Percent recoveries were not reported and target chemical concentrations were only reported graphically but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No statistical analysis was reported and data was not provided to perform an independent statistical analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are similar to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Ziogou, K., Kirk P, W. W., Lester, J. N. (1989). Behavior of phthalic acid esters during batch anaerobic digestion of sludge. Water Research 23(6):743-748.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316130

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Non-guideline batch anaerobic digestion study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich; NR; 99%
Blank and Control	Yes, sterile (autoclaved) and azide controls; Not reported
Oxygen and Inoculum	anaerobic; activated sludge, non-adapted: Mixed digested sludge from Hogsmill Valley Water Pollution Control Works (Thames Water Authority)
Duration, Parameter, System, and Sampling Frequency	32 days; test mat.: Sealed jars kept stationary in a water bath at 37°C; 0, 1, 2, 4, 8, 16 and 32 days
pH Adjusted and pH	Not Reported; Not reported
Concentration	0.5 - 10 mg/L
Composition and Test Temperature	50 mg/L sodium acetate, 25 mg/L sodium propionate and 25 mg/L sodium sulphide; 37°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not applicable; Not reported; Not reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-ECD; 63 Ni-ECD; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	t1/2 > 32 days; Not reported; 32 days; Not reported
Results Remarks and Results Details	Not applicable; k1=0 h-1 at S0=10 mg/L
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were used and removed the possibility of external influences impacting the outcome.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	Ziogou, K., Kirk P, W. W., Lester, J. N. (1989). Behavior of phthalic acid esters during batch anaerobic digestion of sludge. Water Research 23(6):743-748.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1316130

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Limited details reported on the test method but may be retrievable from the referenced primary source.
	Metric 6:	Testing Conditions	Medium	Limited details reported on the test condition but may be retrievable from the referenced article.
	Metric 7:	Testing Consistency	Medium	Limited details were reported but may be retrievable from the referenced article.
	Metric 8:	System Type and Design	Medium	Limited details regarding test system type and design were provided but may be retrievable from the referenced primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Percent recovery and pH were not reported, but was unlikely to have a substantial impact on evaluation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	The kinetic calculation was not reported and statistical analysis was minimal; however, the omissions are not likely to impact the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Alatriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Toxicity of di-(2-ethylhexyl) phthalate on the anaerobic digestion of wastewater sludge. Water Research 37(6):1260-1269.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679194

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic digestion of wastewater sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic; digested sludge: Mixture of primary sludge and secondary mixed liquor from Hyperion Wastewater Treatment Plant at Playa del Rey, California
Duration, Parameter, System, and Sampling Frequency	190 days, data reported for last 12 weeks; test mat.; bench-scale digesters; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Sludge; Feeding sludge and digester sludge; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	134.9 mg/L -
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Biogas: Gas chromatograph with thermal conductivity detector; Test material: gas chromatography with flame-ionization detection; Operated at 85°C, He flow 30 mL/min; Operated at 150 - 275°C, He flow 1.2 mL/min; 9
Results Remarks	Biodegradation based on biogas evolution (CH4/CO2). Average removal efficiency reported over 12 week period. Average influent: 212.7±49.6 mg/LAverage effluent: 2.9±4.5 mg/L
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; ± 8.1%; Not reported; Not reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	26.3%; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	N/A	The pre-existing test substance was being detected in sludge from a treatment facility, test substance purity is not applicable.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups. The results reported are a control group for an inoculum toxicity study.

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Study Citation:	Alatriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Toxicity of di-(2-ethylhexyl) phthalate on the anaerobic digestion of wastewater sludge. Water Research 37(6):1260-1269.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679194

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	The pre-existing test substance was being detected in sludge from a treatment facility, test substance stability is not applicable.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in test condition reporting, however sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported the test organism, species, or inoculum are routinely used for similar study types and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical extraction efficiency and mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	The metric is not applicable to this study type.

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Study Citation:	Alatriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Toxicity of di-(2-ethylhexyl) phthalate on the anaerobic digestion of wastewater sludge. Water Research 37(6):1260-1269.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679194

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Balabanic, D., Klemencic, A. K. (2011). Presence of phthalates, bisphenol a, and nonylphenol in paper mill wastewaters in slovenia and efficiency of aerobic and combined aerobic-anaerobic biological wastewater treatment plants for their removal. Fresenius Environmental Bulletin 20(1):93-100.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1322110

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Removal efficiencies of on-site biological wastewater treatment plants used to treat effluent from two paper mills.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; Standard or analytical grade
Oxygen and Inoculum	aerobic/anaerobic; sewage, predominantly industrial, adapted: Plant A influent: COD (mg/L): 325-450; BOD (mg/L): 205-240; Plant B influent: COD (mg/L): 670-885; BOD (mg/L): 345-400.
Duration, Parameter, System, and Sampling Frequency	Samples collected for four months; test mat.; Plant A used aerobic biological treatment; plant B used combined aerobic/anaerobic biological treatment.; 60 samples from each location over four months (120 total)
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Samples were refrigerated and transported directly to the laboratory for analysis.; Not reported; Not reported; Not reported; Not reported; Plant A: influent: 7.6-8.2; effluent: 7.0-7.4; Plant B: influent: 7.3-8.1; effluent: 7.0-7.4
Control Dark, Control, and Blank	Not Reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Agilent 7890 GC-MS in splitless mode, 1µL injection. Concentrations calculated using calibration curves of standards.; 7
Results Remarks	Plant A influent conc.: 1.22-1.44±0.07 µg/LPlant A effluent conc.: 0.17-0.28±0.04 µg/LPlant B influent conc.: 1.59-2.01±1.14 µg/LPlant B effluent conc.: 0.33-0.46±0.05 µg/L
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; (Estimated from table) Plant A:±5%; Plant B:±4%; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Plant A removal %: 84; Plant B removal %: 78; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	Standard and analytical grade chemicals were used.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not reported but their omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Balabanic, D., Klemencic, A. K. (2011). Presence of phthalates, bisphenol a, and nonylphenol in paper mill wastewaters in slovenia and efficiency of aerobic and combined aerobic-anaerobic biological wastewater treatment plants for their removal. Fresenius Environmental Bulletin 20(1):93-100.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1322110

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions wren monitored and clearly reported.
	Metric 7:	Testing Consistency	High	Testing was consistent across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some details regarding the sampling methods were not reported but their omission is unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in the measurements and was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Percent recoveries were not reported but their omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were not reported but their omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: aerobic thermophilic biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; sewage, domestic (adaptation not specified): Sewage sludge from municipal sewage treatment plant, Sulzbach-Rosenberg, Germany
Duration, Parameter, System, and Sampling Frequency	4 d; test mat.; Laboratory batch scale experiments; Every 24 h
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	24, 48, 72, 96 h; Sludge; Sludge dry mass; Not reported; Not reported; 7.2 - 8.3
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	UV-spectrophotometry and high performance liquid chromatography with UV-detector; methods described in DIN 38 414 S 2 and S 3 for dry mass, COD and NH4-H in liquid phase analytical method similar to DIN 38409 H 41 and DIN 38406 E 5; 7
Results Remarks	24 h: 45% reduction48 h: approx. 50% reduction72 h : approx. 55% reduction96 h: 67% reduction
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Kinetics were studied by monitoring test substance concentration, COD, dry solid matter content, and organic dry solid matter
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	67% (air rate = 16 L/hr); Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	Test substance source and purity were not reported, however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.

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Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions) and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and for degradation studies, sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.

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Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: aerobic thermophilic biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; sewage, domestic (adaptation not specified): Sewage sludge from municipal sewage treatment plant, Sulzbach-Rosenberg, Germany
Duration, Parameter, System, and Sampling Frequency	4 d; test mat.; Laboratory batch scale experiments; Every 24 h
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	24, 48, 72, 96 h; Sludge; Sludge dry mass; Not reported; Not reported; 7.2 - 8.9
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	UV-spectrophotometry and high performance liquid chromatography with UV-detector; methods described in DIN 38 414 S 2 and S 3 for dry mass, COD and NH4-H in liquid phase analytical method similar to DIN 38409 H 41 and DIN 38406 E 5; 7
Results Remarks	24 h: 14% reduction48 h: approx. 20% reduction72 h : approx. 30% reduction96 h: 63% reduction
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Kinetics were studied by monitoring test substance concentration, COD, dry solid matter content, and organic dry solid matter
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	63% (air rate = 4 L/hr); Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	Test substance source and purity were not reported, however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions) and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and for degradation studies, sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				

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Study Citation:	Banat, F. A., Prechtl, S., Bischof, F. (1999). Experimental assessment of bio-reduction of di-2-thylhexyl phthalate (DEHP) under aerobic thermophilic conditions. Chemosphere 39(12):2097-2106.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679209

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Call, D. J., Cox, D. A., Geiger, D. L., Genisot, K. I., Markee, T. P., Brooke, L. T., Polkinghorne, C. N., Vandeventer, F. A., Gorsuch, J. W., Robillard, K. A., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 2. Sediment exposures. Environmental Toxicology and Chemistry 20(8):1805-1815.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679311

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: stability concentrations in pore-water
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	not specified; natural sediment: natural sediment from Airport Pond (St. Louis County, Minnesota, USA) and West Bearskin Lake (Cook County, Minnesota, USA)
Duration, Parameter, System, and Sampling Frequency	6 days; not specified; 4-L glass jar sealed with a Teflon-lined cap and rotated on a roller mill in a cold room (~4°C) for 6 d or more at a speed of approximately 8 rpm.; periodically
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	1, 3 and 6 days; blended sediments; 4.80% TOC; 46.9% sand; 30.2% silt; 2.34% coarse clay; 20.5% fine clay; deionized water; not reported; not reported
Control Dark, Control, and Blank	Not Reported; not applicable; not applicable
Concentration	30,000 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC; Not Reported; test mat.
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not calculable due to equilibrium not reached.; Not Reported; not applicable; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	The source and purity of the test substance were not reported, but are available in the cited material.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	The study did not require concurrent control groups.

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Study Citation:	Call, D. J., Cox, D. A., Geiger, D. L., Genisot, K. I., Markee, T. P., Brooke, L. T., Polkinghorne, C. N., Vandeventer, F. A., Gorsuch, J. W., Robillard, K. A., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 2. Sediment exposures. Environmental Toxicology and Chemistry 20(8):1805-1815.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679311

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established or reported preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome(s) of interest. This is a serious flaw that makes the study unusable.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements between study groups were reported in the study and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.

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Study Citation:	Call, D. J., Cox, D. A., Geiger, D. L., Genisot, K. I., Markee, T. P., Brooke, L. T., Polkinghorne, C. N., Vandeventer, F. A., Gorsuch, J. W., Robillard, K. A., Parkerton, T. F., Reiley, M. C., Ankley, G. T., Mount, D. R. (2001). An assessment of the toxicity of phthalate esters to freshwater benthos. 2. Sediment exposures. Environmental Toxicology and Chemistry 20(8):1805-1815.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679311

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but these differences were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Chang, B. V., Liao, C. S., Yuan, S. Y. (2005). Anaerobic degradation of diethyl phthalate, di-n-butyl phthalate, and di-(2-ethylhexyl) phthalate from river sediment in Taiwan. Chemosphere 58(11):1601-1607.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679331

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: none
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service, Westchester, PA; NR; 99.0%
Oxygen and Inoculum	anaerobic; natural sediment: Top 10 cm layer sediment from Taiwanese Keelung River.
Duration, Parameter, System, and Sampling Frequency	84 days; test mat.; Triplicate 125mL serum bottles.; 9 samples taken over 84 days.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; 45mL medium, 5g river sediment, and 5ug/g mixture of DEP, DBP, and DEHP. Autoclaved medium adjusted to pH 7.0; Not reported; Not reported; Not reported; Initial pH=7.0; range over 84 days=6.7-7.3
Control Dark, Control, and Blank	yes; Not reported; Autoclaved at 121 C for 1h, three times.
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HP 5890 GC with ECD; Detection limit: 100ug/L; 7
Results Remarks	Anaerobic degradation rates were enhanced by the addition of the surfactants brij 35 and triton N101 at a concentration of 1 critical micelle concentration (CMC), and by the addition of yeast extract. Degradation rates were inhibited by the addition of acetate, pyruvate, lactate, FeCl3, MnO2, NaCl, heavy metals, and nonylphenol.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	25.7 days - inoculated control; < 10%; Not reported; Not reported
Results Details	Data was fit to S=So^(-k1t), where S is the substrate conc., So is the initial conc., t is time, and k1 is the biodegradation constant.
Mean Total Recovery Results and Results Per Recovery	97.5%; 95.4% DEHP remaining in sterile samples after 84 days. DEHP was completely degraded after 84 days in the inoculated samples.
Results Value, Direct Quantum Yield Results, and Transformation Products	k=0.027/day; Not Reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
	Metric 2:	Test Substance Purity	High	The purity of the test substance was 99.0%.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A sterile control was implemented.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.

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Study Citation:	Chang, B. V., Liao, C. S., Yuan, S. Y. (2005). Anaerobic degradation of diethyl phthalate, di-n-butyl phthalate, and di-(2-ethylhexyl) phthalate from river sediment in Taiwan. Chemosphere 58(11):1601-1607.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679331

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	The test substance concentration was not reported but the omission is not likely to have a substantial impact on the study results.
Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the method.
Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
Metric 8:	System Type and Design	High	The sealed system was capable of maintaining the test substance concentrations.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	High	Information regarding the inoculum was reported and appropriate for the method.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
Metric 12:	Test Substance Purity	Medium	Sampling methods were not clearly reported but their omission is not likely to impact the study results.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	High	No confounding variables between study groups were noted.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	High	Extraction recoveries, sterile control recoveries, and half-lives were reported.
Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and appropriate.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cite d in HSDB and ECHA

Study Citation:	Chang, B. V., Wang, T. H., Yuan, S. Y. (2007). Biodegradation of four phthalate esters in sludge. Chemosphere 69(7):1116-1123.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675049

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline aerobic degradation in sludge
Solvent, Reactivity, Storage, Stability	Hexane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service, West Chester, PA, USA; NR; 99.0%
Oxygen and Inoculum	aerobic; Not Reported: Not reported
Duration, Parameter, System, and Sampling Frequency	Not reported; Not Reported; Bioreactor; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; 7.0
Control Dark, Control, and Blank	Not reported; Not reported; Sterile controls autoclaved at 121 C for 20 min.
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD (Hewlett-Packard 5890); Detection limit: 1.0 ug/L; Not Reported
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	3.8 days; < 10%; Not reported; Not reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; 97.5%
Results Value, Direct Quantum Yield Results, and Transformation Products	k=0.182; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using established nomenclature and structure.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were utilized.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Chang, B. V., Wang, T. H., Yuan, S. Y. (2007). Biodegradation of four phthalate esters in sludge. Chemosphere 69(7):1116-1123.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675049

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored and appropriate for the study method.
	Metric 7:	Testing Consistency	High	Tests were done in triplicate and standard deviation was less than 10%.
	Metric 8:	System Type and Design	High	The system was agitated using an impeller.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was suitable for the desired endpoint.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variance between samples was accounted for and did not influence the outcome.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The percent recovery and degradation products were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was performed using ANOVA.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Ejlertsson, J., Johansson, E., Karlsson, A., Meyerson, U., Svensson, B. H. (1996). Anaerobic degradation of xenobiotics by organisms form municipal solid waste under landfilling conditions. Antonie van Leeuwenhoek 69(1):67-74.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1315944

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: municipal solid waste anaerobic microflora
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; MERCK; NR; NR
Oxygen and Inoculum	anaerobic; anaerobic microorganisms
Duration, Parameter, System, and Sampling Frequency	100 days; test mat.; Experimental bottles (118 ml); every 10 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	0, 3, 9 and 10 day interval; liquid sampled; Milled Municipal Sewage Waste with a particle size of approximately 1 cm; aqueous phosphate buffer; Not reported; mineral medium=pH 7
Control Dark, Control, and Blank	Not reported; Not reported; Yes, check for methane production from waste material in the inoculum
Concentration	50 mgC/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC for methane and GC-MS for test substance detection; Not Reported; 1
Results Remarks	not transformed
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not applicable; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	0%; Not Reported; Not applicable

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Use of a control group was reported.
	Metric 4:	Test Substance Stability	Medium	Loss due to abiotic processes and/or adsorption were not controlled.
Domain 3: Test Conditions				

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Study Citation:	Ejlertsson, J., Johansson, E., Karlsson, A., Meyerson, U., Svensson, B. H. (1996). Anaerobic degradation of xenobiotics by organisms form municipal solid waste under landfilling conditions. Antonie van Leeuwenhoek 69(1):67-74.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1315944

Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Some details were omitted.
	Metric 6:	Testing Conditions	High	Test conditions were consistent across samples or study groups.
	Metric 7:	Testing Consistency	High	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism source was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and recovery were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical and kinetic calculations were not described in detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: anerobic biodegradation in batch kinetic experiment
Solvent, Reactivity, Storage, Stability	Ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic; activated sludge, domestic, non-adapted: Primary sludge from Luddite municipal wastewater treatment plant in Lyngby, Denmark, and 30 mL BA medium
Duration, Parameter, System, and Sampling Frequency	240 d; test mat.; 58 mL serum vials; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not Reported; Not Reported; Not reported; 6.9
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	gas chromatography with mass selective detector; Test material extracted with dichloromethane; Not Reported
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	198 d; Not reported; Not reported; Not reported
Results Details	Batch kinetic experiments Kinetic constant (K_h): 0.35E-2±0.09E-2 /dayR^2: 0.97
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The test substance source was not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent negative control, or blank group, were included.
Metric 4:	Test Substance Stability	High	The test substance preparation were reported and were appropriate for the study.

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Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and the test inoculum are routinely used for similar study types and are appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in HSDB

Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: anerobic biodegradation in batch kinetic experiment
Solvent, Reactivity, Storage, Stability	Ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic; activated sludge, domestic, adapted: Primary sludge from Lundofte municipal wastewater treatment plant in Lyngby, Denmark, and 30 mL BA medium
Duration, Parameter, System, and Sampling Frequency	240 d; test mat.; 58 mL serum vials; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not Reported; Not Reported; Not reported; 6.9
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	gas chromatography with mass selective detector; Test material extracted with dichloromethane; Not Reported
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	173 d; Not reported; Not reported; Not reported
Results Details	Batch kinetic experiments Kinetic constant (K_h): 0.40E-2±0.02E-2 /dayR^2: 0.95
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, were included.
	Metric 4:	Test Substance Stability	High	The test substance preparation were reported and were appropriate for the study.
Domain 3: Test Conditions				

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Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and the test inoculum are routinely used for similar study types and are appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

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Study Citation:	Gavala, H. N., Atriste-Mondragon, F., Iranpour, R., Ahring, B. K. (2003). Biodegradation of phthalate esters during the mesophilic anaerobic digestion of sludge. Chemosphere 52(4):673-682.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679552

EVALUATION

Domain	Metric	Rating	Comments

Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: aerobic biodegradation in a continuous stirred tank reactor
Solvent, Reactivity, Storage, Stability	untreated organic fraction of municipal solid waste; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Grinsted co-digestion plant, Denmark; NR; NA Notes: Test material detected in untreated OFMSW collected from a treatment plant. Test material in DCM spike used as an internal standard.
Oxygen and Inoculum	anaerobic; activated sludge, domestic (adaptation not specified): untreated organic fraction of municipal solid waste from Grinsted plant, Denmark, diluted to a slurry of 6% TS (w/w)
Duration, Parameter, System, and Sampling Frequency	490 d; test mat.; continuous stirred tank reactor; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; water and sediment; influent sediment; influent and effluent liquid; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; DEHP extracted with dichloromethane, detection limit 0.005 mg/L; 7
Results Remarks	After 140 days, the liquid effluent from phase 1 was recycled for dilution of OFMSW used as influent into phase 1. The phase 1 effluent was treated in a second reactor during phase 2 starting on day 340.0-140 d: 0.98 mg/L DEHP141-339 d: 7.51 mg/L DEHP340-442 d: 0.78 mg/L DEHP (phase 1); 1.25 mg/L DEHP (phase 2): 33.8% reduction443-490 d: 1.86 mg/L DEHP (Phase 1); 3.45 mg/L DEHP (phase 2); 53.1% reduction
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	340-442 d: Kh=0.107 / d443-490 d: Kh=0.3207 / d
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	53.1% / 443-490d; Not Reported; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance was identified by GC-MS.
Domain 2: Test Design			

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Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported, and was appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and it's routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical extraction efficiency and mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).

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Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: aerobic biodegradation in a continuous stirred tank reactor
Solvent, Reactivity, Storage, Stability	untreated organic fraction of municipal solid waste; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Grinsted co-digestion plant, Denmark; NR; NA
Oxygen and Inoculum	anaerobic; activated sludge, domestic (adaptation not specified): untreated organic fraction of municipal solid waste from Grinsted plant, Denmark, stabilized to 50:50% VS sludge and cow manure
Duration, Parameter, System, and Sampling Frequency	442 d; test mat.; continuous stirred tank reactor; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; water and sediment; influent sediment; influent and effluent liquid; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; DEHP extracted with dichloromethane, detection limit 0.005 mg/L; 7
Results Remarks	141-339 d: 3.16 mg/L DEHP; no reduction observed340-442 d : 1.06 mg/L DEHP: 9.6% reduction
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	340-442 d: Kh=0.009 / d
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	9.6% / 340 - 442 d; Not Reported; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was identified by GC-MS.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported, and was appropriate for the study.
Domain 3: Test Conditions				

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Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and it's routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical extraction efficiency and mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Hartmann, H., Ahring, B. K. (2003). Phthalic acid esters found in municipal organic waste: Enhanced anaerobic degradation under hyper-thermophilic conditions. Water Science and Technology 48(4):175-183.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679640

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: laboratory scale anerobic-anoxic-aerobic activated sludge treatment system
Solvent, Reactivity, Storage, Stability	extracted with solid phase extraction cartridge and methanol/ether solvent. Solution was then evaporated to dryness and the dry residue test substance was dissolved in acetonitrile for analysis; NR; samples from laboratory system stored in 1 L glass bottles; NR
Radiolabel, Source, State, Purity	NA; Wastewater used as influent collected from sewage collection in a residential area of Shanghai, China; Liquid; NA
Oxygen and Inoculum	aerobic/anaerobic; activated sludge, domestic (adaptation not specified): anoxic-aerobic activated sludge obtained from Shanghai Changqiao Wastewater Treatment Plant, China; sewage wastewater collected from station in Shanghai, China
Duration, Parameter, System, and Sampling Frequency	15 d; test mat.; 7-L anaerobic reactor, 7-L anoxic reactor, and a 21-L aerobic reactor and settling reactor; Daily
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Water and sludge; solid phase in anaerobic, anoxic, and aerobic reactors; return sludge; Influent; aqueous phase in anerobic, anoxic, and aerobic reactors; effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not applicable
Concentration	4.58 - 5.98 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with ultraviolet detector; LOD NR; 7
Results Remarks	Values estimated from figure per HRT, degradation of 60-74% reported in study. 20-38% was accumulated in the system. 1-2% was detected in the waste sludge, 2-5% remained in the final effluent. The overall removal efficiency was > 95%. Hydraulic retention time did not have a significant effect on removal efficiency.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Influent: 4.58 - 5.98 ug/L DEHPAnaerobic sludge: 1.34 - 1.60 ug/g DEHPAnaerobic aqueous phase: 0.72 - 0.82 ug/L DEHPAnoxic sludge: 1.16 - 1.55 ug/g DEHPAnoxic aqueous phase: 0.33 - 0.51 ug/L DEHPAerobic sludge: 0.80 - 1.14 ug/g DEHPAerobic aqueous phase: 0.13 - 0.22 ug/L DEHPReturn sludge: 0.82 - 1.20 ug/g DEHPEffluent: 0.11 - 0.21 ug/L DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	70%, 68%, 60%, 58%; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the substance was reported and the source and purity of extraction solvents was reported.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 2: Test Design				
	Metric 3:	Study Controls	High	The study did not require concurrent control groups, the study was measuring test substance disappearance.
	Metric 4:	Test Substance Stability	High	The wastewater and sludge samples preparation and test substance extraction were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, most were reported, and were appropriate for the method. Omissions in reporting were not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and mass balance were reported. Sufficient evidence was provided to confirm the test substance disappearance was due to biodegradation. Extraction efficiency and detection limits were not reported but were not likely to have substantial impact of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: laboratory scale anerobic-anoxic-aerobic activated sludge treatment system
Solvent, Reactivity, Storage, Stability	extracted with solid phase extraction cartridge and methanol/ether solvent. Solution was then evaporated to dryness and the dry residue test substance was dissolved in acetonitrile for analysis; NR; samples from laboratory system stored in 1 L glass bottles; NR
Radiolabel, Source, State, Purity	NA; Wastewater used as influent collected from sewage collection in a residential area of Shanghai, China; Liquid; NA
Oxygen and Inoculum	aerobic/anaerobic; activated sludge, domestic (adaptation not specified): anoxic-aerobic activated sludge obtained from Shanghai Changqiao Wastewater Treatment Plant, China; sewage wastewater collected from station in Shanghai, China
Duration, Parameter, System, and Sampling Frequency	10 d; test mat.; 7-L anaerobic reactor, 7-L anoxic reactor, and a 21-L aerobic reactor and settling reactor; Daily
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Water and sludge; solid phase in anaerobic, anoxic, and aerobic reactors; return sludge; Influent; aqueous phase in anerobic, anoxic, and aerobic reactors; effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not applicable
Concentration	8.61 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with ultraviolet detector; LOD NR; 7
Results Remarks	Values estimated from figure. Removal efficiency: 88%
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Influent: 8.61 ug/L DEHPAnaerobic sludge: 1.97 ug/g DEHPAnaerobic aqueous phase: 1.77 ug/L DEHPAnoxic sludge: 1.68 ug/g DEHPAnoxic aqueous phase: 1.21 ug/L DEHPAerobic sludge: 1.23 ug/g DEHPAerobic aqueous phase: 0.91 ug/L DEHPReturn sludge: 1.22 ug/g DEHPEffluent: 0.90 ug/L DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	62%; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the substance was reported and the source and purity of extraction solvents was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	The study did not require concurrent control groups, the study was measuring test substance disappearance.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The wastewater and sludge samples preparation and test substance extraction were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, most were reported, and were appropriate for the method. Omissions in reporting were not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and mass balance were reported. Sufficient evidence was provided to confirm the test substance disappearance was due to biodegradation. Extraction efficiency and detection limits were not reported but were not likely to have substantial impact of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: laboratory scale anerobic-anoxic-aerobic activated sludge treatment system
Solvent, Reactivity, Storage, Stability	extracted with solid phase extraction cartridge and methanol/ether solvent. Solution was then evaporated to dryness and the dry residue test substance was dissolved in acetonitrile for analysis; NR; samples from laboratory system stored in 1 L glass bottles; NR
Radiolabel, Source, State, Purity	NA; Wastewater used as influent collected from sewage collection in a residential area of Shanghai, China; Liquid; NA
Oxygen and Inoculum	aerobic/anaerobic; activated sludge, domestic (adaptation not specified): anoxic-aerobic activated sludge obtained from Shanghai Changqiao Wastewater Treatment Plant, China; sewage wastewater collected from station in Shanghai, China
Duration, Parameter, System, and Sampling Frequency	15 d; test mat.; 7-L anaerobic reactor, 7-L anoxic reactor, and a 21-L aerobic reactor and settling reactor; Daily
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Water and sludge; solid phase in anaerobic, anoxic, and aerobic reactors; return sludge; Influent; aqueous phase in anerobic, anoxic, and aerobic reactors; effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not applicable
Concentration	5.74 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with ultraviolet detector; LOD NR; 7
Results Remarks	Values estimated from figure. Removal efficiency: 96%
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Influent: 5.74 ug/L DEHPAnaerobic sludge: 1.61 ug/g DEHPAnaerobic aqueous phase: 0.80 ug/L DEHPAnoxic sludge: 1.36 ug/g DEHPAnoxic aqueous phase: 0.39 ug/L DEHPAerobic sludge: 1.01 ug/g DEHPAerobic aqueous phase: 0.15 ug/L DEHPReturn sludge: 1.07 ug/g DEHPEffluent: 0.14 ug/L DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	68%; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the substance was reported and the source and purity of extraction solvents was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	The study did not require concurrent control groups, the study was measuring test substance disappearance.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The wastewater and sludge samples preparation and test substance extraction were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, most were reported, and were appropriate for the method. Omissions in reporting were not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and mass balance were reported. Sufficient evidence was provided to confirm the test substance disappearance was due to biodegradation. Extraction efficiency and detection limits were not reported but were not likely to have substantial impact of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: laboratory scale anerobic-anoxic-aerobic activated sludge treatment system
Solvent, Reactivity, Storage, Stability	extracted with solid phase extraction cartridge and methanol/ether solvent. Solution was then evaporated to dryness and the dry residue test substance was dissolved in acetonitrile for analysis; NR; samples from laboratory system stored in 1 L glass bottles; NR
Radiolabel, Source, State, Purity	NA; Wastewater used as influent collected from sewage collection in a residential area of Shanghai, China; Liquid; NA
Oxygen and Inoculum	aerobic/anaerobic; activated sludge, domestic (adaptation not specified): anoxic-aerobic activated sludge obtained from Shanghai Changqiao Wastewater Treatment Plant, China; sewage wastewater collected from station in Shanghai, China
Duration, Parameter, System, and Sampling Frequency	20 d; test mat.; 7-L anaerobic reactor, 7-L anoxic reactor, and a 21-L aerobic reactor and settling reactor; Daily
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Water and sludge; solid phase in anaerobic, anoxic, and aerobic reactors; return sludge; Influent; aqueous phase in anerobic, anoxic, and aerobic reactors; effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not applicable
Concentration	10.33 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with ultraviolet detector; LOD NR; 7
Results Remarks	Values estimated from figure.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Influent: 10.33 ug/L DEHPAnaerobic sludge: 3.44 ug/g DEHPAnaerobic aqueous phase: 1.14 ug/L DEHPAnoxic sludge: 2.37 ug/g DEHPAnoxic aqueous phase: 0.53 ug/L DEHPAerobic sludge: 1.80 ug/g DEHPAerobic aqueous phase: 0.36 ug/L DEHPReturn sludge: 1.72 ug/g DEHPEffluent: 0.30 ug/L DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	70%; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The source of the substance was reported and the source and purity of extraction solvents was reported.
Domain 2: Test Design			
	Metric 3: Study Controls	High	The study did not require concurrent control groups, the study was measuring test substance disappearance.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The wastewater and sludge samples preparation and test substance extraction were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, most were reported, and were appropriate for the method. Omissions in reporting were not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and mass balance were reported. Sufficient evidence was provided to confirm the test substance disappearance was due to biodegradation. Extraction efficiency and detection limits were not reported but were not likely to have substantial impact of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: laboratory scale anerobic-anoxic-aerobic activated sludge treatment system
Solvent, Reactivity, Storage, Stability	extracted with solid phase extraction cartridge and methanol/ether solvent. Solution was then evaporated to dryness and the dry residue test substance was dissolved in acetonitrile for analysis; NR; samples from laboratory system stored in 1 L glass bottles; NR
Radiolabel, Source, State, Purity	NA; Wastewater used as influent collected from sewage collection in a residential area of Shanghai, China; Liquid; NA
Oxygen and Inoculum	aerobic/anaerobic; activated sludge, domestic (adaptation not specified): anoxic-aerobic activated sludge obtained from Shanghai Changqiao Wastewater Treatment Plant, China; sewage wastewater collected from station in Shanghai, China
Duration, Parameter, System, and Sampling Frequency	25 d; test mat.; 7-L anaerobic reactor, 7-L anoxic reactor, and a 21-L aerobic reactor and settling reactor; Daily
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Water and sludge; solid phase in anaerobic, anoxic, and aerobic reactors; return sludge; Influent; aqueous phase in anerobic, anoxic, and aerobic reactors; effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not applicable
Concentration	6.98 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with ultraviolet detector; LOD NR; 7
Results Remarks	Values estimated from figure.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Influent: 6.98 ug/L DEHPAnaerobic sludge: 1.56 ug/g DEHPAnaerobic aqueous phase: 0.73 ug/L DEHPAnoxic sludge: 1.24 ug/g DEHPAnoxic aqueous phase: 0.55 ug/L DEHPAerobic sludge: 0.96 ug/g DEHPAerobic aqueous phase: 0.21 ug/L DEHPReturn sludge: 0.99 ug/g DEHPEffluent: 0.20 ug/L DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	75%; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source of the substance was reported and the source and purity of extraction solvents was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	The study did not require concurrent control groups, the study was measuring test substance disappearance.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The wastewater and sludge samples preparation and test substance extraction were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, most were reported, and were appropriate for the method. Omissions in reporting were not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and mass balance were reported. Sufficient evidence was provided to confirm the test substance disappearance was due to biodegradation. Extraction efficiency and detection limits were not reported but were not likely to have substantial impact of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Huang, M., Li, Y., Gu, G. (2008). The effects of hydraulic retention time and sludge retention time on the fate of di-(2-ethylhexyl) phthalate in a laboratory-scale anaerobic-anoxic-aerobic activated sludge system. Bioresource Technology 99(17):8107-8111.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	698188

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1325551

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Aerobic biodegradation study in sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbonyl-14C and ring labeled di-2-ethylhexyl phthalate, 13.36 and 10.52 mCi/mM, respectively; Pathfinder, Laboratories Inc., St. Louis. Mo; NR; >99%
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: Little Dixie Lake, an agricultural watershed 16 km east of Columbia, Missouri. Sediment collected form the littoral zone.
Duration, Parameter, System, and Sampling Frequency	14 days and 28 days; 14CO2 evolved; sealed flask, incubated; semi-weekly
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	14 and 28 days; sediment and water; Little Dixie Lake sediment, pre-exposed to test substance for 28 days; Little Dixie Lake water; Not reported; Not reported
Control Dark, Control, and Blank	yes; Not applicable; Peptone and glucose controls, untreated and carrier-solvent treated sediments
Concentration	18.2 ug/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Beckman LS-230 liquid scintillation counter; Not Reported; 2
Results Remarks	primary biodegradation
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; ± 0.21 and±0.53; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not applicable; Not applicable
Results Value, Direct Quantum Yield Results, and Transformation Products	1.85% in 14 days and 5.9% in 28 days; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance purity, radiolabel location and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1325551

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed and reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling details were not reported but their omission was not likely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables between study groups were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some data were not reported such as percent recovery, but the omissions were not likely to impact the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some calculation details were not reported but their omission was not likely to impact the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1325551

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Aerobic biodegradation study in sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbonyl-14C and ring labeled di-2-ethylhexyl phthalate, 13.36 and 10.52 mCi/mM, respectively; Pathfinder, Laboratories Inc., St. Louis. Mo; NR; >99%
Oxygen and Inoculum	aerobic/anaerobic; natural water / sediment: freshwater: Little Dixie Lake, an agricultural watershed 16 km east of Columbia, Missouri. Sediment collected form the littoral zone.
Duration, Parameter, System, and Sampling Frequency	28 days; radiochem. meas.; sealed flask, incubated; semi-weekly
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	7, 14, 21, 28 days; sediment and water; Little Dixie Lake sediment, pre-exposed to test substance for 28 days; Little Dixie Lake water; Not reported; Not reported
Control Dark, Control, and Blank	yes; Not applicable; Peptone and glucose controls, untreated and carrier-solvent treated sediments
Concentration	14.3 ug/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Beckman LS-230 liquid scintillation counter; Not Reported; 2
Results Remarks	ultimate biodegradation; methanogenesisin anaerobic sediments was not included. The effect of temperature and test substance concentrations was also investigated
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; 6.49 and 1.21% under aerobic and anaerobic conditions, respectively; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not applicable; Not applicable
Results Value, Direct Quantum Yield Results, and Transformation Products	13.79 and 9.86% in 28 days under aerobic and anaerobic conditions, respectively; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	High	The test substance purity, radiolabel location and source were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1325551

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed and reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling details were not reported but their omission was not likely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables between study groups were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some data were not reported such as percent recovery, but the omissions were not likely to impact the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some calculation details were not reported but their omission was not likely to impact the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in Freshwater Sediments under static (aerobic) and flow through conditions (aerobic & anaerobic)
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	carbonyl-[14C] and ring-[14C] labelled di-2-ethylhexyl phthalate; specific activity 13.36 and 10.52 mCi/mM, respectively; Pathfinder Laboratories Inc., St. Louis Missouri; NR; >99% by gas-liquid and thin-layer chromatography
Oxygen and Inoculum	aerobic/anaerobic; natural water / sediment: freshwater: Sediment and water taken from Little Dixie Lake, located in an agricultural watershed east of Columbia, Missouri; sediments were pre-exposed for 28 days prior to incubation period of study
Duration, Parameter, System, and Sampling Frequency	28 days; radiochem. meas.; Erlenmeyer flask (static) or reaction beaker (flow-through) sealed with rubber stopper; periodically
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	days 3, 7, 21, and 28; labelled CO2 was trapped; total organic carbon 8.0±0.7%; Not reported; Not reported; sediment pH 7.6±0.2
Control Dark, Control, and Blank	yes; Not reported; controls consisted of untreated sediments and solvent (acetone) treated sediments
Concentration	14.3 - 18.2 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation counter; Not reported; 2
Results Remarks	Primary biodegradation (18.2 µg/L) under aerobic conditions: 1.85±0.21%/14days, 5.90±0.53%/28days; Ultimate biodegradation (14.3 µg/L) under aerobic conditions: 5.05±2.54%/7days, 9.06±3.96%/14days, 12.08±5.37%/21days, 13.79±6.49%/28days; flow-through anaerobic conditions (14.3 µg/L): 1.00±0.15%/7days, 3.18±0.49%/14days, 5.73±0.58%/21days, 9.86±1.21%/28days
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; ± SD; Not reported; Not reported
Results Details	Primary biodegradation at 10 mg/L: 19.79±0.6%/28days, at 1.82 mg/L: 8.47±0.5%/28days, at 0.182 mg/L: 9.29±0.3%/28days, at 0.0182 mg/L: 9.98±0.9%/28days
Mean Total Recovery Results and Results Per Recovery	Not reported; Note: methanogenesis in anaerobic sediments may result in losses of CO2, this was noted but not accounted for in the results; results given do don't appear to distinguish between the aerobic static and flow-though methods.
Results Value, Direct Quantum Yield Results, and Transformation Products	13.79±6.49%/28days (aerobic); 9.86±1.21%/28days (anaerobic; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			

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Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	Low	Study controls were not well defined. Abiotic controls were not included.
	Metric 4:	Test Substance Stability	Medium	Limited detail regarding this metric.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test methods were suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Limited detail on microbial activity. Soil was pre-exposed to the test material.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Sampling methods were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Abiotic loss was not accounted for or discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Limited analytical detail; mass balance and recovery not reported; clear results based on flow-though and static conditions not apparent.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Limited data reporting and lack of appropriate controls are serious flaws.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

* Related References: Cited in ECHA

Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Biodegradation in freshwater sediment from Little Dixie Lake, Missouri.
Solvent, Reactivity, Storage, Stability	Acetone carrier solvent; NR; NR; NR
Radiolabel, Source, State, Purity	Carbonyl-C14 and ring-labelled C14; Pathfinder Laboratories Inc., St. Louis, Missouri; NR; >99% by gas-liquid and thin-layer chromatography
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: Sediment and water samples were collected from Little Dixie Lake, Missouri.
Duration, Parameter, System, and Sampling Frequency	28 days; radiochem. meas.; 250mL flask with 100mL water and sediment (9:1 wt:wt).; Days 3, 7, 14, 21, 28
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; 7.6±0.4
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	18.2 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Static and flow-through respirometers were used with Liquid Scintillation counting; Beckman LS-230 LSC; 7
Results Remarks	After 4 weeks, DEHP primary biodegradation at 5, 12, 22, and 28°C was approximately 1, 3, 6, and 10.5%, respectively. Initial concentrations of 0.0182, 0.182, 1.82, and 10.0 mg/L DEHP were also tested, resulting in primary degradation % of 9.98, 9.29, 8.47, and 19.79 (22°C, 28 days).
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; See Value field; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Primary biodegradation % after 14 days: 1.85±0.21; 28 days: 5.90±0.53.; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Metric 4:	Test Substance Stability	High	Some details regarding the test substance storage conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test substance was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate and addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported and unlikely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable for the detection of the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	A statistical analysis was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Biodegradation in freshwater sediment from Little Dixie Lake, Missouri.
Solvent, Reactivity, Storage, Stability	Acetone carrier solvent; NR; NR; NR
Radiolabel, Source, State, Purity	Carbonyl-C14 and ring-labelled C14; Pathfinder Laboratories Inc., St. Louis, Missouri; NR; >99% by gas-liquid and thin-layer chromatography
Oxygen and Inoculum	aerobic/anaerobic; natural water / sediment: freshwater: Sediment and water samples were collected from Little Dixie Lake, Missouri.
Duration, Parameter, System, and Sampling Frequency	28 days; radiochem. meas.; 250mL flask with 100mL water and sediment (9:1 wt:wt).Anaerobic tests were conducted with nitrogen flushed flask.; Days 7, 14, 21, 28
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; 7.6±0.4
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	14.3 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Static and flow-through respirometers were used with Liquid Scintillation counting; Beckman LS-230 LSC; 6
Results Remarks	Anaerobic 14-CO2 data did not account for loss of CO2 via methanogenesis.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not Reported
Results Details	Aerobic degradation after 7, 14, 21, and 28 days: 5.05±2.54, 9.06±3.96, 12.08±5.37, and 13.79±6.49, respectively. Anaerobic degradation after 7, 14, 21, and 28 days: 1.00±0.15, 3.18±0.49, 5.73±0.58, 9.86±1.21.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Ultimate biodegradation % after 28 days in aerobic conditions: 13.79±6.49; anaerobic conditions: 9.86±1.21.; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Controls were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance storage conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	679999

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test substance was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	In the anaerobic trials, the outcome assessment methodology had flaws which may have impacted the study results.
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	The uncertainty in the anaerobic trials due to CO2 losses by methanogenesis were not reported and this may impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was less accurate for the anaerobic trials and this may have had an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	A statistical analysis was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Johnson, B. T., Lulves, W. (1975). Biodegradation of di-n-butyl phthalate and di-2-ethylhexyl phthalate in freshwater hydrosoil. Journal of the Fisheries Research Board of Canada 32(3):333-340.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333192

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation of DEHP by hydrosoil taken from pond.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14-C; Mallinckrodt Company supplied carbon labelled DEHP. Standards were supplied by Monsanto Company.; NR; Radiolabeled DEHP was >99% according to autoradiography of TLC
Oxygen and Inoculum	aerobic/anaerobic; natural sediment: freshwater: Hydrosoil was collected using a core sampler at a 1m pond depth. The sampler collected a 5cm deep sample.
Duration, Parameter, System, and Sampling Frequency	30 days; CO2 evolution; Flask contained 10g wet weight sediment and 20mL pond water and were dosed with 100µL of acetone containing 14-C DBP. Aerobic and anaerobic incubation was performed.; Days 1, 5, 7, 14, and 30
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Sediment and pond water in same compartment.; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	no; 250mg/L sodium azide was added to some samples.; Acetone control and autoclaved (15lb pressure and 121°C for 20 min) samples.
Concentration	1 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Thin layer chromatography - autoradiography; Ether extract spotted on 0.2mm precoated silica gel TLC plate (Brinkman, EM Reagents). Quantification was done by scraping silica gel into a scintillation vial and counting with a fluorescent indicator.; 7
Results Remarks	Sterile (autoclaved and NaN3 dosed) controls had 100% recovery of DEHP after 30 days.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	No anaerobic biodegradation occurred. Aerobic biodegradation was slower than DBP which reached 97% after 5 days.
Mean Total Recovery Results and Results Per Recovery	85±5%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	% recovery of radioactivity from hydrosoil (vs. control) under aerobic conditions after 1, 5, 7, 14, and 30 days, respectively: 100, 100, 100, 53, 41. Anaerobic (same days): 100, 100, 100, 100, 100 (no removal observed after 30 days).; Not Reported; n-butyl phthalate and phthalic acid were the only identifiable transformation products using TLC standards. 3 unidentifiable spots were also seen.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was >99%.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were used in the study.

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Study Citation:	Johnson, B. T., Lulves, W. (1975). Biodegradation of di-n-butyl phthalate and di-2-ethylhexyl phthalate in freshwater hydrosoil. Journal of the Fisheries Research Board of Canada 32(3):333-340.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333192

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions across sample groups were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the measurements was reported and reported values were adjusted appropriately.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Although an older analytical method was used, the data reporting was appropriate and sufficient evidence was provided to confirm biodegradation was the process causing removal of the target substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	681974

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anerobic biodegradation in river sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; 99%
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: 5 g of 0-15 cm surface sediment samples collected from Fong-Shan River in Taiwan
Duration, Parameter, System, and Sampling Frequency	30 d; test mat.; Centrifuge tube; Every 5 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	1, 5, 10, 15, 20, 25, and 30 d; Solid phase; native freshwater sediment; distilled water; 15.3 cmol / kg; 7.8
Control Dark, Control, and Blank	Not Reported; Not reported; Included
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectroscopy; MDL 0.53 mg/kg; 7
Results Remarks	13% / 30d in unsterilized sediment sample, 3% / 30d in sterilized sediment, representing abiotic transformation
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not applicable; Not Reported
Results Details	Approximate values from figure: 0%/1d, 2%/5d, 5%/10d, 7%/15d, 9%/20d, 11%/25d, 13%/30d
Mean Total Recovery Results and Results Per Recovery	105±2.3%; Not Reported
Results Value, Direct Quantum Yield Results, and Transformation Products	13%; Not Reported; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A sterilized sediment sample was tested concurrently.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions				

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Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	681974

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Sediment characteristics were reported and biodegradation conditions were appropriate for the test method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the inoculum is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sample collection and analytical methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Test material concentrations, extraction efficiency and detection limits were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Kickham, P., Otton, S. V., Moore, M. M., Ikonomou, M. G., Gobas, F. A. P.,C (2012). Relationship between biodegradation and sorption of phthalate esters and their metabolites in natural sediments. Environmental Toxicology and Chemistry 31(8):1730-1737.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1339546

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Biodegradation of DEHP in marine sediment.
Solvent, Reactivity, Storage, Stability	Acetonitrile (Spectro-grade distilled); NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich; NR; NR
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: The top 0.5-1.0cm of sediment from False Creek (urban marine inlet) was collected and pooled. Overlying water was also collected.
Duration, Parameter, System, and Sampling Frequency	Incubation lasted 144 days for test samples and 96 days for controls.; test mat.; 125mL glass jars with foil lined lids. Headspace was exchanged twice per week by shaking contents at 120rpm for 5 minutes with an open lid.; Days 0, 0.5, 1, 2, 4, 8, 12, 24, 48, 96, and 144.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; 30g spiked sediment and 10mL of water; Not reported; Not reported; Not reported; 8.0±0.1
Control Dark, Control, and Blank	yes; Sediment was autoclaved and spiked with 300µL of mercuric chloride. The same treatment was done for water samples.; Blanks were prepared in triplicate without sediment.
Concentration	170 µg/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Low resolution gas chromatography-mass spectrometry; Monoesters were analyzed using liquid chromatography electrospray-ionization mass spectrometry.; 7
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	t(1/2), days: 347; 0.0008; Not reported; Not reported
Results Details	Concentration of DEHP decreased slowly over 144 days, but was still significant when compared to the control sediments.
Mean Total Recovery Results and Results Per Recovery	82±8%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	rate constant, k (day^-1): 0.002; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterilized controls and method blanks were both used.

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Study Citation:	Kickham, P., Otton, S. V., Moore, M. M., Ikonomou, M. G., Gobas, F. A. P.,C (2012). Relationship between biodegradation and sorption of phthalate esters and their metabolites in natural sediments. Environmental Toxicology and Chemistry 31(8):1730-1737.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1339546

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation, homogeneity, and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the target chemical was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported differences between the replicates or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported and does not influence the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and sensitive enough to monitor the target chemical concentration and the extraction efficiency was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic calculations and statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable and consistent with those obtained for other similar chemicals in the study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline anaerobic biodegradation in natural sediment microcosms
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kishida Chemical, Osaka; NR; Analytical grade
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Sediment: Zuion Pond, pH 6.61, 15.2°C, 82.2 solid content g/L dw . Mineral salt medium: 356 mg K2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal solution in 1 L DI water.
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days. 3 taken during the first 10 days.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; One compartment; Not reported; Not reported; Not reported; 7.2
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	High Performance Liquid Chromatography; CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric detector. TSK ODS 80-TM; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	207.5 days; Not reported; Not reported; Not reported
Results Details	Half lives calculated using t(1/2)=ln2/k
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	Analytical grade BBP was used in the study.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Control groups were not reported; however, their omission is not likely to have a substantial impact on the study results.

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Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance storage conditions and preparation methods were reported and suitable.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were present or reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and addressed the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline anaerobic biodegradation in natural sediment microcosms
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kishida Chemical, Osaka; NR; Analytical grade
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Sediment: Piano Pond, pH 6.47,15.7°C, 106.6 solid content g/L dw . Mineral salt medium: 356 mg K2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal solution in 1 L DI water.
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days. 3 taken during the first 10 days.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; One compartment; Not reported; Not reported; Not reported; 7.2
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	High Performance Liquid Chromatography; CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric detector. TSK ODS 80-TM; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	269.7 days; Not reported; Not reported; Not reported
Results Details	Half lives calculated using t(1/2)=ln2/k
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	Analytical grade BBP was used in the study.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Control groups were not reported; however, their omission is not likely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	The test substance storage conditions and preparation methods were reported and suitable.

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Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were present or reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and addressed the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline anaerobic biodegradation in natural sediment microcosms
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kishida Chemical, Osaka; NR; Analytical grade
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Sediment: Ue Pond, pH 6.95, 16.3°C, solid content 52.4 g/L dw. Mineral salt medium: 356 mg K2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal solution in 1 L DI water.
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days. 3 taken during the first 10 days.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; One compartment; Not reported; Not reported; Not reported; 7.2
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	High Performance Liquid Chromatography; CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric detector. TSK ODS 80-TM; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	279.5 days; Not reported; Not reported; Not reported
Results Details	Half lives calculated using t(1/2)=ln2/k
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	Analytical grade BBP was used in the study.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Control groups were not reported; however, their omission is not likely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	The test substance storage conditions and preparation methods were reported and suitable.

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Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675274

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were present or reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and addressed the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Marttinen, S. K., Kettunen, R. H., Rintala, J. A. (2003). Occurrence and removal of organic pollutants in sewages and landfill leachates. Science of the Total Environment 301(1-3):1-12.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1249997

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; Analytical grade
Oxygen and Inoculum	aerobic/anaerobic; mixture of sewage, soil and natural water: STPs with influents containing domestic wastewater and runoff/industrial wastewater/landfill leachate
Duration, Parameter, System, and Sampling Frequency	3 years; test mat.; Toivakka and Virrat STPs: mechanical treatment and biological activated sludge processes (including anaerobic digestion) with simultaneous phosphorus precipitation. Toivakka and Virrat STPs: only biological treatment.; Samples collected in 15 minute intervals
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	24 hour composite samples were made; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; Blank controls were used.
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HP GC-MS; LOQ: 1 µg/L; 9
Results Remarks	71-85% of DEHP was sorbed to particles 0.1-41µm in sewage. DEHP removal by sedimentation was 17-35%.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	DEHP load to STP (g/d) Espoo: 2770–7850; Jyvaskyla: 1090–2300; Virrat 80; Toivakka 11–13
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	DEHP % removal from sewage: Espoo: 80-90; Jyvaskyla: 96; Virrat: 95; Toivakka: 96.; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance was analytical grade.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Blank controls were used to monitor laboratory contamination.
Metric 4:	Test Substance Stability	Medium	The test substance preparation was reported but storage conditions were not; however, the omission is unlikely to have an impact on the study results.

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Study Citation:	Marttinen, S. K., Kettunen, R. H., Rintala, J. A. (2003). Occurrence and removal of organic pollutants in sewages and landfill leachates. Science of the Total Environment 301(1-3):1-12.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1249997

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions such as temperature, pH, and CEC were not reported but were unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions in different STPs were described sufficiently.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not discussed, however, reported concentration ranges suggest the results reasonable.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency was not reported but its omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not clearly described but their omission is unlikely to have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	O'Connor, O. A., Rivera, M. D., Young, L. Y. (1989). Toxicity and biodegradation of phthalic acid esters under methanogenic conditions. Environmental Toxicology and Chemistry 8(7):569-576.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316118

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biochemical methane potential assessed by a modified Hungate technique
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluka; NR; >99%
Oxygen and Inoculum	anaerobic; activated sludge, domestic (adaptation not specified): Secondary sludge from Suffern Municipal Wastewater Treatment Facility and mineral medium
Duration, Parameter, System, and Sampling Frequency	140 d; test mat.; 160 mL serum bottles with butyl rubber stopper and aluminum crimp; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	60 d; Not Reported; Secondary sludge; Mineral medium in deionized water; Not applicable; Not reported
Control Dark, Control, and Blank	yes; Toxicity test conducted; Yes
Concentration	20 - 200 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Fischer-Hamilton Model 1200 gas partitioner with thermal conductivity detector; Shimadzu 2400 UV-Vis spectrophotometer; 0.35 mL volume of gas head space collected with 1.0 or 0.5 mL gas-tight syringe; UV absorbance scans 190 - 360 nm; 9
Results Remarks	Percent total gas evolution of 20, 100, and 200 mg/L test substance, based on conversion stoichiometry: C24H38O4 + 12.5 H2O –> 8.25 CO2 + 15.75 CH4
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Sterile control; 0%0.00±0.00 methane mmol; 0.00±0.00 total gas mmol; 1.20 residual substrate mmol (initial: 200 mg/L)
Results Details	Total gas: 0.025±0.01, 0.030±0.01, and 0.025±0.01 mmolTheoretical gas: 0.122, 0.612, and 1.22 mmolMethane yield: 0.04±0.01, 0.03±0.01, and 0.035±0.02 mmolTheoretical methane yield: 0.080, 0.402, and 0.803 mmolResidual substrate: 0, 0.19, and 0.57 mmol
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	20, 4.9, and 2.0%; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A blank group was included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.

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Study Citation:	O'Connor, O. A., Rivera, M. D., Young, L. Y. (1989). Toxicity and biodegradation of phthalic acid esters under methanogenic conditions. Environmental Toxicology and Chemistry 8(7):569-576.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316118

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Anaerobic conditions identified, conditions were appropriate.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Sampling times were not clearly reported and biodegradation rate could not be determined.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was accounted for in statistical analysis.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable, sufficient evidence was presented to confirm the parent was disappearing via degradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5492430

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biotransformation in freshwater lake sediment
Solvent, Reactivity, Storage, Stability	Hexane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service, West Chester, PA, USA; NR; 99.0%
Oxygen and Inoculum	anaerobic; sewage, predominantly domestic, non-adapted: Freshwater lake sediment (top 5 cm) from Swift Creek, Lake Blackshear
Duration, Parameter, System, and Sampling Frequency	365 d; test mat.; 200 mL sterile medium was added to an anaerobic chamber with inoculum (10% w/v or v/v). 5mL aliquots were added to centrifuge tubes and aliquots of PAE solution were added.; at days: 0, 15, 31, 61, 365d
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	365 d; Not reported; Not reported; Not reported; Not reported; 7.0
Control Dark, Control, and Blank	Not Reported; Toxicity experiments using pure culture P. aeruginosa, B. subtilis, and E. coli suggests PAEs did not significantly affect growth or activity at concentrations used in this study.; Sterile inoculated control: 4% degraded by day 61
Concentration	20 - 200 µmol/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	PAE's were spiked and 3x extracted with HPLC grade hexane (performed in triplicate). Partitioning to sediments were examined by centrifugation and separate hexane extraction. Extracts examined by GC (Hewlett Packard 5890A) with flame ionization detector.; Not reported; 7
Results Remarks	DEHP did not degrade in freshwater sediment. Additional experiments indicated that adsorption of PAE's to sediment was rapid: >50% in initial samples and 63% of DBP was associated with the sediment phase.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; 104% remaining after 365d. Sterile control.
Results Details	0% of DEHP disappeared after 365 days.
Mean Total Recovery Results and Results Per Recovery	Extraction efficiency for DEHP (20-100 µM) ranged from 71 ±4% to 78 ±6%.; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	102% (no bioconversion); % remaining test material (DBP) after /n days (n total 365); Not Reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study used appropriate controls.
	Metric 4:	Test Substance Stability	Medium	The test substance storage conditions and preparation were reported and appropriate.

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Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5492430

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Testing conditions were reported and appropriate.
Metric 7:	Testing Consistency	Medium	The testing conditions were consistent across the study groups.
Metric 8:	System Type and Design	High	The metric is not applicable to the study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	High	The inoculum source and type were reported.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest.
Metric 12:	Test Substance Purity	Medium	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Uncertainty was not reported for all of the concentration measurements but was for the extraction efficiencies.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Low	The data reporting was appropriate.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported but the data is available for an independent analysis.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5492430

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biotransformation in salt marsh sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Services (West Chester, PA); NR; 98-99%
Oxygen and Inoculum	anaerobic; sewage, predominantly industrial, adapted: Salt marsh sediment (upper 5-10 cm) from the intermediate to short Spartina alterniflora zone of Airport marsh on Sapelo Island, GA. The salinity of the marsh was approx. 20 ppt.
Duration, Parameter, System, and Sampling Frequency	1 year; test mat.; 200 mL sterile medium was added to an anaerobic chamber with inoculum (10% w/v or v/v). 5mL aliquots were added to centrifuge tubes and aliquots of PAE solution were added.; at day: 0, 22, 36, 100, 365
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	365d; Not reported; Not reported; Not reported; Not reported; 7.0
Control Dark, Control, and Blank	Not Reported; Toxicity experiments using pure culture P. aeruginosa, B. subtilis, and E. coli suggests PAEs did not significantly affect growth or activity at concentrations used in this study.; Sterile inoculated control: 4% degraded after 365 d
Concentration	200 µmol/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	PAE's were spiked and 3x extracted with HPLC grade hexane (performed in triplicate). Partitioning to sediments were examined by centrifugation and separate hexane extraction. Extracts examined by GC (Hewlett Packard 5890A) with flame ionization detector.; Not reported; 7
Results Remarks	DEHP was persistent salt marsh sediment. Additional experiments indicated that adsorption of PAE's to sediment was rapid: >50% in initial samples and 63% of DEHP was associated with the sediment phase.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; 96% remaining after 365d. Sterile control
Results Details	12% of DEHP disappeared after 365 days.
Mean Total Recovery Results and Results Per Recovery	Extraction efficiency for DEHP was not determined; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	82% (18% bioconversion); % remaining test material after /n days (n total 365); Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	The study used appropriate controls.
Metric 4:	Test Substance Stability	Medium	The test substance storage conditions and preparation were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Painter, S. E., Jones, W. J. (1990). Anaerobic bioconversion of phthalic acid esters by natural inocula. Environmental Technology 11(11):1015.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5492430

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	Medium	The testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and type were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported for all of the concentration measurements but was for the extraction efficiencies.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported but the data is available for an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Pakou, C., Kornaros, M., Stamatelatou, K., Lyberatos, G. (2009). On the fate of LAS, NPEOs and DEHP in municipal sewage sludge during composting. Bioresource Technology 100(4):1634-1642.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	697780

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Test substance degradation in composted sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluka; NR; NR
Oxygen and Inoculum	aerobic; other: composted sludge and Sheep or cow manure
Duration, Parameter, System, and Sampling Frequency	62 days; test mat.; 2 parallel autothermal, in-vessel, aerobic bioreactors; every 2 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not applicable; Composted sludge; 2.5:1 mixture of primary and secondary sludge, composted with sheep manure; Milli-Q purification system water; Not reported; 7, after adjustment
Control Dark, Control, and Blank	Not reported; Not applicable; trials where test substance was inherent but not added
Concentration	0.0551 - 1.29 g/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with UV-Vis and Fluorescence detectors; Not applicable; 7
Results Remarks	Not applicable
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Not discussed in detailed
Mean Total Recovery Results and Results Per Recovery	Yes; 96.8%
Results Value, Direct Quantum Yield Results, and Transformation Products	97.02% removal; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Controls were used; however, use of a reference substance was not reported.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	Pakou, C., Kornaros, M., Stamatelatou, K., Lyberatos, G. (2009). On the fate of LAS, NPEOs and DEHP in municipal sewage sludge during composting. Bioresource Technology 100(4):1634-1642.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	697780

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	Medium	There were omissions in system design; however, the omissions were not likely to have had a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported but is not routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The sludge used in the study contained mixtures of chemicals and inherent concentrations of the test substance that likely have an impact on results.
	Metric 12:	Test Substance Purity	Medium	There were omissions in details; however, the omissions were not likely to have had a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	There were omissions in details; however, the omissions were not likely to have had a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	There were omissions in details; however, the omissions were not likely to have had a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Parker, W. J., Monteith, H. D., Melcer, H. (1994). Estimation of anaerobic biodegradation rates for toxic organic compounds in municipal sludge digestion. Water Research 28(8):1779-1789.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316112

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Removal efficiency in pilot scale anaerobic digester
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic; activated sludge, domestic (adaptation not specified): Primary sludge and waste activated sludge in a 2:1 ratio
Duration, Parameter, System, and Sampling Frequency	197 d pre-operation, 80 d dosing with test substance, 21 monitoring; test mat.; two stage pilot digester; every 2 wk (first 60 d of operation), every 3-4d (next 20 d of operation), every 7 d (final 21 d of operation)
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Sludge and water; Non-dosed and dosed influent sludge; Influent, effluent; Not reported; 6.8 (6.7 - 7.1)
Control Dark, Control, and Blank	Not Reported; Not reported; Not reported
Concentration	10800 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/MS in selective ion mode; Sludge measurements extracted with DCM; 7
Results Remarks	Overall removal efficiency. Primary digester removal 61.0%Secondary digester removal 58.5%Secondary supernatant residual 5.5%Secondary sludge residual 10.6%Kp: 16.40Kp calculated by log (100*Kp)=1.14 + 0.58*log Kow
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Biodegradation rate coefficient (mixed second order in biomass and soluble contamination concentration): 0.90 L/g day (95% confidence interval 0.65 - 1.15 L/g day)
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	83.3%; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Blank or toxicity controls were not explicitly included.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study.

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Study Citation:	Parker, W. J., Monteith, H. D., Melcer, H. (1994). Estimation of anaerobic biodegradation rates for toxic organic compounds in municipal sludge digestion. Water Research 28(8):1779-1789.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316112

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Most of the relevant testing conditions were reported (anaerobic conditions, pH, temperature).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum source was reported and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was accounted for by appropriate statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and recovery was discussed but specific values may have been reported elsewhere.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; natural sediment: brackish: Sediments in Roskilde Fjord, Denmark
Duration, Parameter, System, and Sampling Frequency	not reported; not specified; not reported; not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	not reported; Not Reported; not reported; not reported; Not Reported; not reported
Control Dark, Control, and Blank	Not Reported; not reported; not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	not reported; Not Reported; not specified
Results Remarks	aerobic first-order degradation rate 2X10-6/second or 1.73/day
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	0.4 days; Not Reported; Not Reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5348332

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	The test method suitability was not reported but may be available in the cited reference.
Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites: Fauser P, Sørensen PB, Vikelsøe J, Carlsen L (2000) Fate of di-2-ethylhexyl) phthalate(DEHP) in Roskilde Fjord. Poster presented at the 20th international symposium on halogenatedenvironmental pollutants & POPs, Dioxin 2000, Monterey CA, August 2000 (not in HERO or dist). Could be comparable to HERO ID 719150 which is in distiller

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic/anaerobic; natural sediment: brackish: Sediments in Roskilde Fjord, Denmark
Duration, Parameter, System, and Sampling Frequency	not reported; not specified; not reported; not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	not reported; Not Reported; not reported; not reported; Not Reported; not reported
Control Dark, Control, and Blank	Not Reported; not reported; not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	not reported; Not Reported; not specified
Results Remarks	Fitting of the model to experimental sediment concentrations gave an aerobic rate constant for degradation of 2E-5 s^-1 and an anaerobic rate constant of 8E-6 s^-1 (below 5 cm) which can be converted to a rate of 0.69 d^-1.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Anaerobic half-life=1.0 days; Not Reported; Not Reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5348332

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method suitability was not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites: Fauser P, Sørensen PB, Vikelsøe J, Carlsen L (2000) Fate of di-2-ethylhexyl) phthalate(DEHP) in Roskilde Fjord. Poster presented at the 20th international symposium on halogenatedenvironmental pollutants & POPs, Dioxin 2000, Monterey CA, August 2000 (not in HERO or dist). Could be comparable to HERO ID 719150 which is in distiller

Study Citation:	Petrasek, A. C., Kugelman, I. J., Austern, B. M., Pressley, T. A., Winslow, L. A., Wise, R. H. (1983). Fate of toxic organic compounds in wastewater treatment plants. Journal of Water Pollution Control Federation 55(10):1286-1296.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316084

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis-(2-ethylhexyl)-phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Pilot scale WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; other: Raw wastewater
Duration, Parameter, System, and Sampling Frequency	312 days; test mat.; Pilot scale treatment process with parallel control and spiked systems. Primary influent was processed through a sewer simulator, an aerated grit chamber, a primary clarifier, and a conventional plug-flow activated sludge process.; Eight 24-h composite samples were collected.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; A blank control experiment was operated in parallel
Concentration	51.7 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Not reported; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Average standard error of mean concentrations (all chemicals): Influent: 31.3%; primary effluent: 28.0%; Not reported; Not reported
Results Details	100% of activated sludge effluent samples contained DEHP. Average concentration=11.3µg/L
Mean Total Recovery Results and Results Per Recovery	Not reported; Influent samples: 67.5±10.2%; primary effluent: 73.4±13.2%
Results Value, Direct Quantum Yield Results, and Transformation Products	Total treatment removal %: 79; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but its omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A blank control was used.

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Study Citation:	Petrasek, A. C., Kugelman, I. J., Austern, B. M., Pressley, T. A., Winslow, L. A., Wise, R. H. (1983). Fate of toxic organic compounds in wastewater treatment plants. Journal of Water Pollution Control Federation 55(10):1286-1296.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1316084

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but their omission is unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some test conditions were not reported but their omission is unlikely to impact the study results.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variabilities in the measurements were reported and addressed in the data reporting.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was adequately described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675406

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Radiolabeled DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[U-14C-ring] 188.7 MBq/mmol; VWR-Merck (Copenhagen, Denmark); NR; >99%
Oxygen and Inoculum	aerobic; activated sludge (adaptation not specified): 10 mL activated sludge diluted 1:1 with sludge supernatant
Duration, Parameter, System, and Sampling Frequency	Not reported; radiochem. meas.; Serum bottles incubated on a shaker; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; gas and liquid; Not Reported; Not Reported; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	100,000 dpm -
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; 14CO2 recovery; 6
Results Remarks	k=1.0E-2 (20°C), 1.4E-2 (32°C), and 1.3E-3 (43°C) per hour
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	First order rate coefficients; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means (chemical analysis, etc.).
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675406

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions, however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Omissions in sampling method reporting however not likely to have a substantial impact on the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675406

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Roy F. Weston Inc, (1980). Characterization and fate of the discharge of priority pollutants from the Rohm and Haas Philadelphia plant into the Delaware low level collector of the Philadelphia sewer.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333014

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; mixture of sewage, soil and natural water: Not reported
Duration, Parameter, System, and Sampling Frequency	Sampling was done in April and December; test mat.; Samples were collected from influent, effluent out of biodisc system, and sludge from storage tanks.; Samples were taken in duplicate.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	24 or 72 hour composite samples were collected.; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; Sample blanks from the normal sampling program were taken.
Concentration	$\geq$ 11.8 - $\leq$ 30.9 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Not reported; 7
Results Remarks	Phthalate contamination was introduced from solvents, glassware, rubber or plastic material.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Recoveries of >60% were observed for most chemicals.
Results Value, Direct Quantum Yield Results, and Transformation Products	Influent/effluent removal % in April and December sampling: 0.0 and 54; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The purity of the analytical standards used were not reported but their omission was unlikely to impact the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Blank controls were used to determine background contamination in the sampling method.

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Study Citation:	Roy F. Weston Inc, (1980). Characterization and fate of the discharge of priority pollutants from the Rohm and Haas Philadelphia plant into the Delaware low level collector of the Philadelphia sewer.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333014

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Some details regarding the test substance preparation and storage conditions were omitted but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method introduced contamination that may impact the study results.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but they are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Differences in the testing conditions between the sample groups were not clearly reported but were unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Phthalate contamination was introduced during the sample processing that likely had a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Compound specific percent recoveries for influent and effluent samples and detection limits were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Tan, B. L., Hawker, D. W., Muller, J. F., Leusch, F. D., Tremblay, L. A., Chapman, H. F. (2007). Modelling of the fate of selected endocrine disruptors in a municipal wastewater treatment plant in South East Queensland, Australia. Chemosphere 69(4):644-654.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675442

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; QSAR; other: WWTP removal
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; activated sludge (adaptation not specified): model based on activated sludge WWTP in South East Queensland, Australia, which receives a mixture of domestic and industrial influent
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; Not reported; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; sludge and water; anaerobic and aerobic bioreactors, settling tank, return activated sludge; influent, effluent; Not reported; Not reported
Control Dark, Control, and Blank	Not reported; Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	gas chromatography-mass spectrometry; extracted from samples with solid phase extraction; 7
Results Remarks	These measured concentrations were reported from Tan et al. 2007 and used in this source to develop a QSAR model for WWTP removal
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not Reported; Not reported; Not reported; Not reported
Results Details	influent: 716 ng/L (water); 38000 ng/g (solids)anaerobic bioreactor: 262 ng/L (water); 6630 ng/g (solids/sludge)aerobic bioreactor: 447 ng/L (water); 6200 ng/g (solids)final settling tank: 393 ng/L (water)return activated sludge: 356 ng/L (water); 9910 ng/g (solids/sludge)effluent: 589 ng/L (water)point of discharge: 595 ng/L1 km down stream: 644 ng/L
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Estimated 74.2% biotransformation, 22.1% sorption to sludge; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.

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Study Citation:	Tan, B. L., Hawker, D. W., Muller, J. F., Leusch, F. D., Tremblay, L. A., Chapman, H. F. (2007). Modelling of the fate of selected endocrine disruptors in a municipal wastewater treatment plant in South East Queensland, Australia. Chemosphere 69(4):644-654.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	675442

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	High	The QSAR model had a defined, unambiguous endpoint and the model performance was known.

Overall Quality Determination — High

Study Citation:	Vavilin, V. A. (2010). Analysis of the mechanism and mathematical modeling of diethylhexylphthalate degradation in aquatic environment. Water Resources 37(3):399-410.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	792131

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Calculation; other: First order kinetics of activated sludge batch experiment biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic at 35 oC; activated sludge (adaptation not specified): Not reported
Duration, Parameter, System, and Sampling Frequency	60d; test mat.; Not Reported; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; Not Reported
Control Dark, Control, and Blank	Not Reported; Not reported; Not reported
Concentration	5.2 - 36 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; Not reported; 7
Results Remarks	Results estimated from figure 1 at 56d for starting concentrations of 5.2, 17, and 36 mg/L
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	First order constant k=0.045 / day and alpha=0.5
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	est. 60%, 35%, 44%; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were reported in another source and could not be assessed.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A control group was not explicitly included, however may have been reported in the other source.

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Study Citation:	Vavilin, V. A. (2010). Analysis of the mechanism and mathematical modeling of diethylhexylphthalate degradation in aquatic environment. Water Resources 37(3):399-410.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	792131

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	Test substance preparation may have been reported in other source and could not be assessed.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable for test substance.
	Metric 6:	Testing Conditions	Medium	Many test conditions were not reported in this study, but may have been reported in another source.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some inoculum information was reported in this study, but may have been elaborated on in another source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The calculations adequately addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	N/A	Sampling methods may have been reported in other source and could not be assessed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The model accounted for non-biodegradation related pathways.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described in depth and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Yuan, S. Y., Liu, C., Liao, C. S., Chang, B. V. (2002). Occurrence and microbial degradation of phthalate esters in Taiwan river sediments. Chemosphere 49(10):1295-1299.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5541359

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not reported; biodegradation kinetics in Taiwanese river sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA); NR; 99.0%
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Top 10 cm layer sediment samples collected from the Zhonggang, Keya, Erren, Gaoping, Donggang, and Danshui Rivers, Taiwan, from January - August 2000
Duration, Parameter, System, and Sampling Frequency	Not reported; formulation; 125 mL serum bottles with 45 mL medium, 5 g river sediment, and 5 ug/g mixture of phthalic acid esters; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Sediment; Natural river sediment; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; Not reported
Concentration	5 ug/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/MS, analytes separated on DB-5 capillary column, 0.25 um film thickness, 0.25 m i.d., 30 m length; detection limit 100 ug/L; Sediment extracted 3x by rotating shaker with hexane; Not Reported
Results Remarks	Range half-life: 29.9 - 39.1 daysAverage background test substance sediment concentration (range): 4.6 ug/g (0.5 - 23.9 ug/g)Danshui River sed. half-life: 22.8 dDanshui River sed. background conc.: 2.3 ug/gZhonggang River sed. half-life: 35.0 dZhonggang River sed. background conc.: 15.9 ug/gIndustrial discharge into the Danshui River has occurred for longer than the Zhonggang River, faster degradation may be due to microbial adaptation.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	34.7 d; Not Reported; Not reported; Not reported
Results Details	First order kinetics: S=S_0*exp(-k*t), t0.5=0.693/k
Mean Total Recovery Results and Results Per Recovery	97.5%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.

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Study Citation:	Yuan, S. Y., Liu, C., Liao, C. S., Chang, B. V. (2002). Occurrence and microbial degradation of phthalate esters in Taiwan river sediments. Chemosphere 49(10):1295-1299.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5541359

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Minimal test conditions were reported, omissions include sediment characteristics, pH, temperature, incubation time, and sample frequency.
	Metric 7:	Testing Consistency	High	Test set up was consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum sources were reported and are commonly used for similar studies.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining degradation kinetics.
	Metric 12:	Test Substance Purity	Medium	Sample preparation was described and appropriate, frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many study details were omitted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was reported; limits of detection and extraction efficiency were reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however many key study details were not reported, which reduces the reliability of this study.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Yuan, S. Y., Liu, C., Liao, C. S., Chang, B. V. (2002). Occurrence and microbial degradation of phthalate esters in Taiwan river sediments. Chemosphere 49(10):1295-1299.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5541359

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not reported; biodegradation kinetics in Taiwanese river sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA); NR; 99.0%
Oxygen and Inoculum	aerobic; natural sediment: freshwater: Top 10 cm layer sediment samples collected from the Zhonggang, Keya, Erren, Gaoping, Donggang, and Danshui Rivers, Taiwan, from January - August 2000
Duration, Parameter, System, and Sampling Frequency	Not reported; formulation; 125 mL serum bottles with 45 mL medium, 5 g river sediment, and 5 ug/g mixture of phthalic acid esters; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Sediment; Natural river sediment; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; Not reported
Concentration	5 ug/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/MS, analytes separated on DB-5 capillary column, 0.25 um film thickness, 0.25 m i.d., 30 m length; detection limit 100 ug/L; Sediment extracted 3x by rotating shaker with hexane; Not Reported
Results Remarks	Range half-life: 7.3 - 27.5 daysAverage background test substance sediment concentration (range): 4.6 ug/g (0.5 - 23.9 ug/g)Danshui River sed. half-life: 7.6 dDanshui River sed. background conc.: 2.3 ug/gZhonggang River sed. half-life: 22.1 dZhonggang River sed. background conc.: 15.9 ug/gIndustrial discharge into the Danshui River has occurred for longer than the Zhonggang River, faster degradation may be due to microbial adaptation.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	14.8 d; Not Reported; Not reported; Not reported
Results Details	First order kinetics: S=S_0*exp(-k*t), t0.5=0.693/k
Mean Total Recovery Results and Results Per Recovery	97.5%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.

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Study Citation:	Yuan, S. Y., Liu, C., Liao, C. S., Chang, B. V. (2002). Occurrence and microbial degradation of phthalate esters in Taiwan river sediments. Chemosphere 49(10):1295-1299.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5541359

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Minimal test conditions were reported, omissions include sediment characteristics, pH, temperature, incubation time, and sample frequency.
	Metric 7:	Testing Consistency	High	Test set up was consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum sources were reported and are commonly used for similar studies.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining degradation kinetics.
	Metric 12:	Test Substance Purity	Medium	Sample preparation was described and appropriate, frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many study details were omitted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was reported; limits of detection and extraction efficiency were reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however many key study details were not reported, which reduces the reliability of this study.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Yuan, S., Huang, I., Chang, B. (2010). Biodegradation of dibutyl phthalate and di-(2-ethylhexyl) phthalate and microbial community changes in mangrove sediment. Journal of Hazardous Materials 184(1-3):826-831.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	697286

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Biodegradation in contaminated river sediment
Solvent, Reactivity, Storage, Stability	Hexane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service, West Chester, PA, USA; NR; 99.0%
Oxygen and Inoculum	aerobic; natural sediment: Inorganic medium (mg/L): K2HPO4, 65.3; KH2PO4, 25.5; Na2HPO4 12H20, 25.5; Na2HPO4 12H2O, 133.8; NH4Cl, 5.1; CaCl2, 82.5; MgSO4 7H2O, 67.5; FeCl3 6H2O, 0.75g.
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; 125mL serum bottle with 45 mL medium, 5g sediment, and 250ug/g of DEHP/DBP (125ug/g each); Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; 6.5-7.6
Control Dark, Control, and Blank	yes; Autoclaved samples were used as sterile control.; Not reported
Concentration	125 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas-chromatograph with electron capture detector.; Detection limit was 1.0 µg/L.; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Sites A-E, respectively (d): 5.8, 5.0, 7.7, 8.7, 6.9; NR. Correlation coefficient: 0.93-0.95; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	97.5%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	K value (1/d) from sites A-E, respectively: 0.12, 0.14, 0.09, 0.08, 0.10; Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substances purity was 99.0%.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate sterile controls were used.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.

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Study Citation:	Yuan, S., Huang, I., Chang, B. (2010). Biodegradation of dibutyl phthalate and di-(2-ethylhexyl) phthalate and microbial community changes in mangrove sediment. Journal of Hazardous Materials 184(1-3):826-831.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	697286

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	Differences in the samples from each site were clearly described.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling conditions were not reported but their omission was not likely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables between study groups were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The percent recovery was reported and the detection limits were appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Sufficient statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333872

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Tokyo Chemical, Japan; NR; NR
Oxygen and Inoculum	aerobic; natural sediment: freshwater: Sediment samples were collected over 1.5 years at several points in the Furu River (Japan). Sediment was centrifuged and dried for at 110°C for 2 hours.
Duration, Parameter, System, and Sampling Frequency	Sediment samples were collected over 1.5 years at several points in the Furu River (Japan). Sediment was centrifuged and dried for at 110°C for 2 hours.; test mat.; 25g wet sediment was spiked with DEHP and incubated at 25°C.; 6 samples taken
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Approximate sample times were at t=0, 20, 50, 100, 180, and 330 hours.; One compartment; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank	Not Reported; Not reported; At the end of the experiment, DEHP was measured on the inside glass walls and was not detected.
Concentration	ca. 2200 µg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with acetonitrile:water 90:10 mobile phase.; Detection limit: 20µg/kg; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	About 2 weeks; Not reported; Not reported; Not reported
Results Details	ln(Ct/C0)=-kt, where Ct is the concentration at time (t) hours, C0 is the initial concentration, and k is the rate constant
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some of the details regarding the controls were not reported but the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1333872

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some of the details regarding the test substance preparation and homogeneity in the samples were not reported but were unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions were unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	There were no reported differences in testing conditions across sample groups, however, the number of sample groups used was not reported.
	Metric 8:	System Type and Design	N/A	The metric was not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type and source were reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainties in the results were not reported or discussed which potentially could impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction recoveries and exact target concentrations or half-lives were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and data was not provided to perform an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are comparable to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Buyuksonmez, F., Sekeroglu, S. (2005). Presence of pharmaceuticals and personal care products (PPCPs) in biosolids and their degradation during composting. Journal of Residuals Science and Technology 2(1):31-40.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2882641

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Not reported; Experimental; other: Non-Guideline biodegradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Acros; NR; 99%
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20-65°C; Biosolids from a municipal WWTP were amended with straw and composted for up to 45 days using a laboratory-scale composting system
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	45 days; Not reported; Composting simulation reactor; Not reported
Control and Blank	Not reported; Not reported
Concentration	1000 other
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS with SIM detector; Not reported; Removal (%)
Results Remarks	Not reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	>87; Not reported; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	Control experiments were not included.
Metric 4:	Test Substance Stability	Low	The test substance stock solution preparation were not reported.

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Study Citation:	Buyuksonmez, F., Sekeroglu, S. (2005). Presence of pharmaceuticals and personal care products (PPCPs) in biosolids and their degradation during composting. Journal of Residuals Science and Technology 2(1):31-40.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2882641

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method details were limited.
	Metric 6:	Testing Conditions	Low	Testing condition details were limited.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	Medium	System design was reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Non-standard inoculum was used.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment wasn't described in detail; precise degradation for target chemical was not reported.
	Metric 12:	Test Substance Purity	Low	Sampling methods were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details not reported; there was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical method was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Carrara, S. M., Morita, D. M., Boscov, M. E. (2011). Biodegradation of di(2-ethylhexyl)phthalate in a typical tropical soil. Journal of Hazardous Materials 197:40-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249420

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	Not reported; Not reported; Not reported; HPLC Grade
Oxygen, pH, and CEC	aerobic; 7.20-7.97; 21 mmolc/kg
Test Type, Test Temperature, and Test Details	laboratory; 24.0-27.0°C; The mixer operated 2 minutes every 12 minutes. 20 L of water were added weekly to the slurry. DEHP concentration, pH, and water content were measured weekly.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silty clay; 5% medium sand, 36% fine sand, 35% silt, and 25% clay. Organic carbon content: 0.3%.; Soil: 1.16 g/cm^3
Soil Classification, Microbial Biomass, and Humidity	Saprolitic; Total heterotrophic bacteria concentration in sludge (CFU/mL): 4.30 x 10^7: Water content (%) over test duration: 55.85-83.16
Duration, Parameter, System, and Sampling Frequency	49 days; test material; Cement mixer was loaded with 150kg of soil, 10 L of DEHP emulsion (15 g DEHP in 10 L water), 80 L water, and 15 L of sludge with microorganisms.; Approximately biweekly
Control and Blank	Not reported; Not reported
Concentration	68.2 mg DEHP/kg of dry soil -
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Hewlett-Packard 6890 GC with split-splitless injector. HPLC grade reagents.; DEHP concentration reduction in soil
Results Remarks	Biodegradation products: isobutyl o-phthalate, butyl octyl ester, 9-octadecenoic acid, octanoic acid, octadecanoic acid, n-hexadecanoic acid, and pyruvic acid.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	98.8%; Not reported; 49 days; Not reported; Not reported
Results Details	First-order biodegradation coefficient: 0.127/d. Approximate 20 day lag phase.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	No controls were reported for the study.

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Study Citation:	Carrara, S. M., Morita, D. M., Boscov, M. E. (2011). Biodegradation of di(2-ethylhexyl)phthalate in a typical tropical soil. Journal of Hazardous Materials 197:40-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249420

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported changes in the testing conditions across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported graphically.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and sufficient evidence was provided to show that the substance removal was not due to another process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic calculation was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Carrara, S. M., Morita, D. M., Boscov, M. E. (2011). Biodegradation of di(2-ethylhexyl)phthalate in a typical tropical soil. Journal of Hazardous Materials 197:40-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249420

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Respirometric test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; HPLC Grade
Oxygen, pH, and CEC	aerobic; 4.1, 4.7, adjusted to 7.0; <270 mmolc/kg
Test Type, Test Temperature, and Test Details	laboratory; 20±2°C; slurry-phase reactor with acclimated microorganisms
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silty clay; 24% clay/35% silt/5% medium sand/36% fine sand/0.3% Organic matter; 1.16 g/cm3
Soil Classification, Microbial Biomass, and Humidity	Brazilian tropical soil; Microcosm and added exogenous microorganisms: Not reported
Duration, Parameter, System, and Sampling Frequency	98 days; test mat.; Bartha biometer flasks; Experimental and control studies performed in triplicate
Control and Blank	bioreactor; Conducted with natural uncontaminated soil, acetone and nutrients
Concentration	1 - 100 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Mass of CO2 absorbed into KOH, GC and GC-MS; Sub-products of DEHP biodegradation determined by GC-MS; reported in figures
Results Remarks	Difference between CO2 production in respirometric test and the control indicates the amount of DEHP biodegradation. The remarkable variability of test results may be attributable to the high amount of CaCO3 necessary to neutralize the acidic soil.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Evidence of biodegradation presented in figures 2 and 3 but not quantified; shown in figures; 98 days; Not reported; Not reported
Results Details	indigenous and exogenous microorganisms demonstrated some biodegradation over 98 days at concentrations of 1, 10 and 100 ppm DEHP
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance purity was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent blank was run for the biodegradation tests.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Carrara, S. M., Morita, D. M., Boscov, M. E. (2011). Biodegradation of di(2-ethylhexyl)phthalate in a typical tropical soil. Journal of Hazardous Materials 197:40-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249420

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment due to the pH adjustment.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variation was attributed to the addition of a significant mass of calcium carbonate to the soil for pH adjustment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Cartwright, C. D., Thompson, I. P., Burns, R. G. (2000). Degradation and impact of phthalate plasticizers on soil microbial communities. Environmental Toxicology and Chemistry 19(5):1253-1261.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1322235

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethyl hexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Poole, Dorset, UK); NR; NR Notes: NR
Oxygen, pH, and CEC	aerobic; 6.25; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Initial sample concentrations were measured after the 1-hr methanol venting period. DEHP was extracted with 10mL ethyl acetate.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; Organic carbon: 3.78%; Not reported
Soil Classification, Microbial Biomass, and Humidity	Sandy clay loam; Not reported: Soil was adjusted to 50%
Duration, Parameter, System, and Sampling Frequency	70 days; test mat.; 2g sieved soil (<1.7mm) incubated in glass bottle for 7 days before addition of DEHP in 100µL methanol. Vortexed after 1h of methanol venting.; (Estimated from figure) Concentrations reported at day 0 (after methanol venting and sample vortexing), 1, 4, 7, 16, 27, 39, 67 days.
Control and Blank	Not reported; Soil autoclaved at 121°C, 103.5 kPa for 20 min, 2 days in a row.
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; Sample concentrations determined using external standard calibration. Detection limit: 0.1µg/mL.; DEHP concentration reduction
Results Remarks	No degradation occurred in sterilized soil or in live soil treated with 1 or 10mg/g DEHP.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	10% after 70 days at 0.1 mg/g; Concentrations were reported in figures and included error bars from triplicate samples that were <10%.; Not reported; DBP; DBP concentrations had a half life of 0.75 days. DBP aqueous phase concentrations were 6.15x10^3 higher than DEHP.
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	DEHP extraction efficiency from soil: 73.3±1.3%; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not directly but is likely to be appropriate and suitable for the study.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Autoclaved soil controls were used.

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Study Citation:	Cartwright, C. D., Thompson, I. P., Burns, R. G. (2000). Degradation and impact of phthalate plasticizers on soil microbial communities. Environmental Toxicology and Chemistry 19(5):1253-1261.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1322235

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation, storage conditions, and homogeneity were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were clearly reported and appropriate for the method.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and preparation procedures were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were clearly described and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in measurements and unlikely to impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The extraction efficiency and analytical methods were reported and appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; screening test; experimental; other: batch
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Chem Service (West Chester, PA, USA); NR; 99.0% analytical standard grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 30 deg C; 50 mg/kg DEHP and 50 mg/kg DBP; soil:compost ratios 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 23.0% clay, 60.5% silt, 16.5% sand, 13.5 g/kg organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	Taoyuan Agricultural Research and Extension Station; 8.2E6 CFU/g bacterial count soil; 1.6E5 CFU/g bacterial count for compost: soil: not reported; compost 43.4% water content
Duration, Parameter, System, and Sampling Frequency	20 days; test mat.; glass bottles containing medium, soil, mixture of DEHP and DBP, compost (mushroom-degraded paddy straw); periodically
Control and Blank	not reported; sterile controls
Concentration	50 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; detection limit 1.0 ug/L; test substance
Results Remarks	the addition of compost increased the microbial counts and enhanced PAE degradation.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	rate constants: 0.11/d, 0.12/d, 0.14/d, 0.15/d, 0.11/d, 0.13/d; half-life: 6.3 d, 5.8 d, 5.0 d, 4.6 d, 6.3 d, 5.3 d at soil:compost 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1, respectively; correlation coefficient: 0.97, 0.93, 0.93, 0.96, 0.97, 0.95 at soil:compost 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1, respectively; 20 d; not applicable; not applicable
Results Details	first-order kinetics; $p < 0.05$
Mean Total Recovery Results and Results Per Recovery	98%; 88% DEHP remained in sterile soil

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; screening test; experimental; other: batch
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Chem Service (West Chester, PA, USA); NR; 99.0% analytical standard grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 30 deg C; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 23.0% clay, 60.5% silt, 16.5% sand, 13.5 g/kg organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	Taoyuan Agricultural Research and Extension Station; 8.2E6 CFU/g bacterial count: not reported
Duration, Parameter, System, and Sampling Frequency	20 days; test mat.; glass bottles containing medium, soil and DEHP; periodically
Control and Blank	not reported; sterile controls
Concentration	50 - 200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; detection limit 1.0 ug/L; test substance
Results Remarks	complete degradation in 15 days at pH 7 and 30 deg C
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	rate constants: 0.20/d, 0.09/d, 0.07/d; half-life: 3.5 d, 7.7 d, 9.9 d at 50, 100, 200 mg/kg, respectively; correlation coefficient: 0.95, 0.95, 0.94 at 50, 100, 200 mg/kg, respectively; 20 d; not applicable; not applicable
Results Details	first-order kinetics; $p < 0.05$
Mean Total Recovery Results and Results Per Recovery	98%; 88% DEHP remained in sterile soil

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; screening test; experimental; other: batch
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Chem Service (West Chester, PA, USA); NR; 99.0% analytical standard grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 30 deg C; 50 mg/kg DEHP and 50 mg/kg DBP; soil:compost ratios 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 23.0% clay, 60.5% silt, 16.5% sand, 13.5 g/kg organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	Taoyuan Agricultural Research and Extension Station; 8.2E6 CFU/g bacterial count soil; 2.2E5 CFU/g bacterial count for compost: soil: not reported; compost 54.3% water content
Duration, Parameter, System, and Sampling Frequency	20 days; test mat.; glass bottles containing medium, soil, mixture of DEHP and DBP, compost (animal manure); periodically
Control and Blank	not reported; sterile controls
Concentration	50 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; detection limit 1.0 ug/L; test substance
Results Remarks	the addition of compost increased the microbial counts and enhanced PAE degradation.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	rate constants: 0.11/d, 0.10/d, 0.12/d, 0.14/d, 0.11/d, 0.12/d; half-life: 6.3 d, 6.9 d, 5.8 d, 5.0 d, 6.3 d, 5.8 d at soil:compost 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1, respectively; correlation coefficient: 0.97, 0.94, 0.96, 0.96, 0.95, 0.94 at soil:compost 1:0, 1:0.1, 1:0.2, 1:0.5, 1:1, 0:1, respectively; 20 d; not applicable; not applicable
Results Details	first-order kinetics; $p < 0.05$
Mean Total Recovery Results and Results Per Recovery	98%; 88% DEHP remained in sterile soil

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; screening test; experimental; other: batch
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Chem Service (West Chester, PA, USA); NR; 99.0% analytical standard grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 4-9; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 30 deg C; 50 mg/kg DEHP and 50 mg/kg DBP
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 23.0% clay, 60.5% silt, 16.5% sand, 13.5 g/kg organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	Taoyuan Agricultural Research and Extension Station; 8.2E6 CFU/g bacterial count: not reported
Duration, Parameter, System, and Sampling Frequency	20 days; test mat.; glass bottles containing medium, soil and mixture of DEHP and DBP; periodically
Control and Blank	not reported; sterile controls
Concentration	50 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; detection limit 1.0 ug/L; test substance
Results Remarks	complete degradation in 15 days at pH 7 and 30 deg C
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	rate constants: 0.05/d, 0.11/d, 0.08/d; half-life: 14 d, 6.3 d, 8.7 d at pH 4, 7, 9, respectively; correlation coefficient: 0.97, 0.97, 0.89 at pH 4, 7, 9, respectively; 20 d; not applicable; not applicable
Results Details	first-order kinetics; $p < 0.05$
Mean Total Recovery Results and Results Per Recovery	98%; 88% DEHP remained in sterile soil

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; screening test; experimental; other: batch
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Chem Service (West Chester, PA, USA); NR; 99.0% analytical standard grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 5-40 deg C; 50 mg/kg DEHP and 50 mg/kg DBP
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 23.0% clay, 60.5% silt, 16.5% sand, 13.5 g/kg organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	Taoyuan Agricultural Research and Extension Station; 8.2E6 CFU/g bacterial count: not reported
Duration, Parameter, System, and Sampling Frequency	20 days; test mat.; glass bottles containing medium, soil and mixture of DEHP and DBP; periodically
Control and Blank	not reported; sterile controls
Concentration	50 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; detection limit 1.0 ug/L; test substance
Results Remarks	complete degradation in 15 days at pH 7 and 30 deg C
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	rate constants: 0.01/d, 0.03/d, 0.11/d, 0.08/d; half-life: 69 d, 23 d, 6.3 d, 8.7 d at 5, 15, 30, 40 deg C, respectively; correlation coefficient: 0.99, 0.97, 0.97, 0.91 at 5, 15, 30, 40 deg C, respectively; 20 d; not applicable; not applicable
Results Details	first-order kinetics; $p < 0.05$
Mean Total Recovery Results and Results Per Recovery	98%; 88% DEHP remained in sterile soil

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Chang, B., Lu, Y., Yuan, S., Tsao, T., Wang, M. (2009). Biodegradation of phthalate esters in compost-amended soil. Chemosphere 74(6):873-877.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	697764

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Dorfler, U., Haala, R., Matthies, M., Scheunert, I. (1996). Mineralization kinetics of chemicals in soils in relation to environmental conditions. Ecotoxicology and Environmental Safety 34(3):216-222.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	679439

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	Ring-labeled 14-C; Sigma Chemie; NR; 98.8%
Oxygen, pH, and CEC	aerobic; GSF: pH 7.2; EF: pH 3.4; BB: pH 4.5; Not reported
Test Type, Test Temperature, and Test Details	laboratory; Room temperature; DEHP in acetone was added to 50mg quartz sand. After acetone evaporation, sand was mixed into the soil sample.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Luvisol; Clay content: GSF=24%, EF=15%, BB=24%. Organic Carbon: GSF=2.6%, EF=5.4%, BB=5.4%.; Not reported
Soil Classification, Microbial Biomass, and Humidity	GSF soil - Rendzina; EF soil - Luvisol; BB soil - Cambisol; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	63 days; CO2 evolution; Not reported; Not reported
Control and Blank	Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Permablend II scintillation cocktail for 14CO2 counting.; Not Reported; CO2 evolution
Results Remarks	Half-lives not reported as 50% degradation was not accomplished over the 63 day period
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	63 day cumulative percent degradation: BB soil=21-22 %; EF soil=31-32%; GSF soil=32-33%; Not reported; Not reported; Not reported; Not reported
Results Details	Significant degradation was only observed at or above 10°C.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported as 98.8%.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Control groups were not reported but their omission was not likely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation was clearly reported.

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Study Citation:	Dorfler, U., Haala, R., Matthies, M., Scheunert, I. (1996). Mineralization kinetics of chemicals in soils in relation to environmental conditions. Ecotoxicology and Environmental Safety 34(3):216-222.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	679439

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test substance method is suitable for the substance.
	Metric 6:	Testing Conditions	High	Some testing conditions such as temperature and humidity were not clearly reported.
	Metric 7:	Testing Consistency	High	Any differences in testing conditions across samples were reported and discussed.
	Metric 8:	System Type and Design	High	The system was described and capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and suitable for the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended endpoint.
	Metric 12:	Test Substance Purity	High	The sampling methods were not clearly reported, however their omission is not likely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Test substance concentrations and method recoveries were not reported, only percent degradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

⋆ Related References: Cited in HSDB and ECHA

Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; Other; Not reported; other: None reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Oxygen, pH, and CEC	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Details	Not Reported; Not Reported; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; Not Reported; Not Reported
Soil Classification, Microbial Biomass, and Humidity	Not Reported; Not Reported: Not Reported
Duration, Parameter, System, and Sampling Frequency	Not Reported; Not Reported; Not Reported; Not Reported
Control and Blank	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not Reported; Not Reported; Not Reported
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Low	The test substance purity was not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details regarding the use of controls were not reported in the secondary source.
Metric 4:	Test Substance Stability	Low	Details regarding the test substance stability, homogeneity, preparation, and storage conditions were not reported in the secondary source.
Domain 3: Test Conditions			

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Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	The test method was not reported in the secondary source.
	Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported in the secondary source.
	Metric 7:	Testing Consistency	Uninformative	Testing consistency across study groups could not be evaluated due to a lack of information in the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Details regarding the test inoculum were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment methodology was not reported in the secondary source, making the study unusable.
	Metric 12:	Test Substance Purity	Low	Details regarding the sampling methods were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability and uncertainty were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported and sufficient evidence was not presented in the secondary source to confirm that parent substance disappearance was not due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis and kinetic calculations were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Rudel et al. 1993 (HERO ID 773059); Shanker et al. 1985 (HERO ID: 1333345); Roslev et al. 1998 (HERO ID: 683768); Peterson and Staples, 2003 (HERO ID: 5348332).

Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; Other; Not reported; other: None reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Oxygen, pH, and CEC	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Details	Not Reported; Not Reported; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sand; Not Reported; Not Reported
Soil Classification, Microbial Biomass, and Humidity	Not Reported; Not Reported: Not Reported
Duration, Parameter, System, and Sampling Frequency	Not Reported; Not Reported; Not Reported; Not Reported
Control and Blank	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not Reported; Not Reported; Not Reported
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported
Results Details	Half-life: 69.3 days
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Low	The test substance purity was not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details regarding the use of controls were not reported in the secondary source.
Metric 4:	Test Substance Stability	Low	Details regarding the test substance stability, homogeneity, preparation, and storage conditions were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The test method was not reported in the secondary source.
Metric 6:	Testing Conditions	N/A	Testing conditions were not reported in the secondary source.

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Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	Testing consistency across study groups could not be evaluated due to a lack of information in the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Details regarding the test inoculum were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment methodology was not reported in the secondary source, making the study unusable.
	Metric 12:	Test Substance Purity	Low	Details regarding the sampling methods were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability and uncertainty were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported and sufficient evidence was not presented in the secondary source to confirm that parent substance disappearance was not due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis and kinetic calculations were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Rudel et al. 1993 (HERO ID 773059); Shanker et al. 1985 (HERO ID: 1333345); Roslev et al. 1998 (HERO ID: 683768); Peterson and Staples, 2003 (HERO ID: 5348332).

Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; Other; Not reported; other: None reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Oxygen, pH, and CEC	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Details	Not Reported; Not Reported; Half-life was measured in bioremediated soil
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Not Reported; Not Reported
Soil Classification, Microbial Biomass, and Humidity	Not Reported; Not Reported: Not Reported
Duration, Parameter, System, and Sampling Frequency	Not Reported; Not Reported; Not Reported; Not Reported
Control and Blank	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not Reported; Not Reported; Not Reported
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported
Results Details	Half-life: 77 days
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Low	The test substance purity was not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details regarding the use of controls were not reported in the secondary source.
Metric 4:	Test Substance Stability	Low	Details regarding the test substance stability, homogeneity, preparation, and storage conditions were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method was not reported in the secondary source.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported in the secondary source.

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Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5353181

Domain		Metric	EVALUATION Rating	Comments
	Metric 7:	Testing Consistency	Uninformative	Testing consistency across study groups could not be evaluated due to a lack of information in the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Details regarding the test inoculum were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment methodology was not reported in the secondary source, making the study unusable.
	Metric 12:	Test Substance Purity	Low	Details regarding the sampling methods were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability and uncertainty were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported and sufficient evidence was not presented in the secondary source to confirm that parent substance disappearance was not due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis and kinetic calculations were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Ferreira ID, Morita DM. 2012. Ex-situ bioremediation of Brazilian soil contaminated with plasticizers process wastes. Braz J Chem Eng. 29:77-86. HERO ID: 6968997.

Study Citation:	Fairbanks, B. C. (1984). Toxic organic behaviour in sludge amended soils. :80-83.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5701337

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbonyl-14C; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 22.5 to 25°C; freshly amended and preconditioned sludge added at 44.9 mt/ha
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Glendale clay and Lea sandy loam; digested municipal sewage sludge from Albuquerque, New Mexico: 0.1 bar moisture
Duration, Parameter, System, and Sampling Frequency	146 days; radiochem. meas.; flow-through respiration system; 10, 25, 50 and 146 days
Control and Blank	Not reported; yes, with no sludge added
Concentration	2 ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	14CO2 analyzed but method not reported; Very limited details reported; CO2 evolution (14C labeled)
Results Remarks	Not applicable
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	84.1 and 89%; average for freshly amended and precondition sludge, respectively; Not reported; 146 days; Not reported; Samples without sludge had 89.8 and 86.9% CO2 evolution after 146 days
Results Details	16, 40.7, 67.2% in 10, 25 and 50 days (average) for freshly amended sludge samples and 60.7, 75.9, 83.5% in 10, 25 and 50 days (average) for precondition sludge
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Fairbanks, B. C. (1984). Toxic organic behaviour in sludge amended soils. :80-83.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5701337

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Some test method details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Medium	Some testing condition details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	Some system design details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism or species is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some statistical method details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this review article.

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Study Citation:	Fairbanks, B. C. (1984). Toxic organic behaviour in sludge amended soils. :80-83.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5701337

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

Study Citation:	Fairbanks, B. C., O'Connor, G. A. (1982). Fate of toxic organics in sludge amended soils. :6-14.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	6818565

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation of DEHP in soil freshly amended with anaerobically digested sewage sludge.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	C-14 (carboxyl labeled); NR; NR; NR
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 22.5-25°C; Sludge was added to the soil directly prior to the test substance addition (freshly amended).
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Clay and fine sandy loam; Not reported: 0.1 bar
Duration, Parameter, System, and Sampling Frequency	146 days; Not Reported; Flow-through respiration system; Days 25, 50, 75, and 146.
Control and Blank	Not reported; Not reported
Concentration	2 - 20
Analytical Method, Analytical Details, and Results Per Degredation Parameter	14-CO2 evolution; Not reported; Average % 14-C recovered as 14-CO2
Results Remarks	Results are reported for a sludge to soil addition rate of 0 t/a. The rate unit is not defined.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	16.0, 68.5, 80.6, and 89.8% after 10, 25, 50, and 146 days, respectively; Not reported; Not reported; Not Reported; Not Reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Study controls were not reported.
Metric 4:	Test Substance Stability	Low	The test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions			

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Study Citation:	Fairbanks, B. C., O'Connor, G. A. (1982). Fate of toxic organics in sludge amended soils. :6-14.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	6818565

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Some of the testing conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	High	Experiments were done in triplicate and there were no reported deviations amount the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Some details regarding the inoculum were not reported which may have an impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Some of the sampling details were not reported and may impact the outcome assessment.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability were not reported and the omission may have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not described and test chemical concentrations were not reported; the omissions may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information the study results could not be evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

Study Citation:	Fairbanks, B. C., O'Connor, G. A. (1982). Fate of toxic organics in sludge amended soils. :6-14.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	6818565

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation of DEHP in soil freshly amended with anaerobically digested sewage sludge.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	C-14 (carboxyl labeled); NR; NR; NR
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 22.5-25°C; Sludge was added to the soil directly prior to the test substance addition (freshly amended).
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Clay and fine sandy loam; Not reported: 0.1 bar
Duration, Parameter, System, and Sampling Frequency	146 days; Not Reported; Flow-through respiration system; Days 25, 50, 75, and 146.
Control and Blank	Not reported; Not reported
Concentration	2 - 20
Analytical Method, Analytical Details, and Results Per Degredation Parameter	14-CO2 evolution; Not reported; Average % 14-C recovered as 14-CO2
Results Remarks	Results are reported for a sludge to soil addition rate of 0 t/a. The rate unit is not defined.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	16.0, 68.5, 80.6, and 89.8% after 10, 25, 50, and 146 days, respectively; Not reported; Not reported; Not Reported; Not Reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2: Test Substance Purity	High	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design			
	Metric 3: Study Controls	Low	Study controls were not reported.
	Metric 4: Test Substance Stability	Low	The test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Fairbanks, B. C., O'Connor, G. A. (1982). Fate of toxic organics in sludge amended soils. :6-14.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	6818565

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Low	Some of the testing conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	High	Experiments were done in triplicate and there were no reported deviations amount the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Some details regarding the inoculum were not reported which may have an impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Some of the sampling details were not reported and may impact the outcome assessment.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability were not reported and the omission may have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not described and test chemical concentrations were not reported; the omissions may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information the study results could not be evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Mineralization in sludge-soil mixture
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14C uniformly ring-labeled; Sigma Chemical (St. Louis, MO, USA); Liquid; >98% (radiochemical purity) Notes: 3.5 mCi/mmol
Oxygen, pH, and CEC	aerobic; 6.0; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 15°C; Test substance mixed and allowed to sorb to dewatered activated sludge (domestic, from WWTP in Lundtofte, Denmark) for 24 h. The treated sludge was then mixed with the soil in a sludge:soil ratio of 1:20 or 1:100 dry wt.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 76.8% coarse sand, 12.2% fine sand, 4.1% silt, 3.9% clay, 3.0% organic matter; Not reported
Soil Classification, Microbial Biomass, and Humidity	Sandy soil; Not reported: 40 or 80% water-holding capacity (WHC=NR)
Duration, Parameter, System, and Sampling Frequency	2 mo; radiochem. meas.; Test media placed in glass tubes, pressed into 25 mm core; tubes placed in a 200 mL glass jar with atmospheric air. Glass vial trap with KOH placed in each jar for 14CO2; Not reported
Control and Blank	Not reported; Not reported
Concentration	ca. 10000 dpm/g wet wt
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectrometry; No further details reported; Mineralization % of added 14C
Results Remarks	Reported for sludge only, 1:20 ratio 40% WHC, 1:20 ratio 80% WHC, 1:100 ratio 40% WHC, and 1:100 80% WHC groups, respectively.Sorption to sludge and soil resulted in the test substance less bioavailable for degradationInitial concentration: 64, 3.0, 3.0, 0.63, and 0.63 mg/kg dry wt.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	17.3, 19.7, 21.8, 20.3, and 17.8%; ±1.7,±2.0,±1.7,±4.8, and ±0.62 (n=4); 2 mo; Not reported; Not reported
Results Details	Maximum rate: 0.29±0.03, 0.32±0.04, 0.36±0.03, 0.33±0.08, and 0.29±0.01% of initial concentration/day
Mean Total Recovery Results and Results Per Recovery	Not reported; 14C % recovery: 46.7±2.5%, 41.6±2.0%, 42.8±5.4%, 54.9±5.6%, and 41.5±0.8%, respectively

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent negative or positive control was not explicitly included, however this was not likely to have a substantial impact on study results. The solvent was evaporated before test start, and is unlikely to influence study results.

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Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and was appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Most test conditions were reported, with a few omissions (CEC).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was provided and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported acceptable sampling methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and between study groups were accounted for in data evaluation and were not likely to influence outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection of the target chemical and sufficient evidence was presented to confirm that the parent was disappearing due to biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were plausible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Mineralization in sludge-soil mixture
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14C uniformly ring-labeled; Sigma Chemical (St. Louis, MO, USA); Liquid; >98% (radiochemical purity) Notes: 3.5 mCi/mmol
Oxygen, pH, and CEC	aerobic; 6.0; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 15°C; Test substance mixed and allowed to sorb to dewatered activated sludge (domestic, from WWTP in Lundtofte, Denmark) for 24 h. The treated sludge was then mixed with the soil in a sludge:soil ratio of 1:100 dry wt. or tested as soil only
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 76.8% coarse sand, 12.2% fine sand, 4.1% silt, 3.9% clay, 3.0% organic matter; Not reported
Soil Classification, Microbial Biomass, and Humidity	Sandy soil (Jyndevad, Denmark); Not reported: 40 water-holding capacity (WHC=NR)
Duration, Parameter, System, and Sampling Frequency	2 mo; radiochem. meas.; Test media placed in glass tubes, pressed into 25 mm core; tubes placed in a 200 mL glass jar with atmospheric air. Glass vial trap with KOH placed in each jar for 14CO2; Not reported
Control and Blank	Not reported; Not reported
Concentration	10000 - ca. 20000 dpm/g wet wt
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectrometry; No further details reported; Mineralization % of added 14C
Results Remarks	Reported for 1:100 mixture and soil only groups, respectively.Sorption to sludge and soil resulted in the test substance less bioavailable for degradationInitial concentration: 0.63 and 0.24 mg/kg dry wt.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	18.0 and 21.8%; ± 2.16 and±0.1.25 (n=4); 2 mo; Not reported; Not reported
Results Details	Maximum rate: 0.29±0.03 and 0.37±0.02% of initial concentration/day
Mean Total Recovery Results and Results Per Recovery	Not reported; 14C % recovery: 54.1±10.4 and 48.8±7.7%, respectively

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A concurrent negative or positive control was not explicitly included, however this was not likely to have a substantial impact on study results. The solvent was evaporated before test start, and is unlikely to influence study results.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported and was appropriate for the study.

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Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Most test conditions were reported, with a few omissions (CEC).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was provided and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported acceptable sampling methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and between study groups were accounted for in data evaluation and were not likely to influence outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection of the target chemical and sufficient evidence was presented to confirm that the parent was disappearing due to biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were plausible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Mineralization in sludge-soil mixture
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14C uniformly ring-labeled; Sigma Chemical (St. Louis, MO, USA); Liquid; >98% (radiochemical purity) Notes: 3.5 mCi/mmol
Oxygen, pH, and CEC	aerobic; 6.1; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 15°C; Test substance mixed and allowed to sorb to dewatered activated sludge (domestic, from WWTP in Lundtofte, Denmark) for 24 h. The treated sludge was then mixed with the soil in a sludge:soil ratio of 1:100 dry wt. or tested as soil only
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 63.1% coarse sand, 26.6% fine sand, 3.8% silt, 4.3% clay, 2.2% organic matter; Not reported
Soil Classification, Microbial Biomass, and Humidity	Sandy soil (Lundgaard, Denmark); Not reported: 40% water-holding capacity (WHC=NR)
Duration, Parameter, System, and Sampling Frequency	2 mo; radiochem. meas.; Test media placed in glass tubes, pressed into 25 mm core; tubes placed in a 200 mL glass jar with atmospheric air. Glass vial trap with KOH placed in each jar for 14CO2; Not reported
Control and Blank	Not reported; Not reported
Concentration	10000 - ca. 20000 dpm/g wet wt
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectrometry; No further details reported; Mineralization % of added 14C
Results Remarks	Reported for 1:100 mixture and soil only groups, respectively.Sorption to sludge and soil resulted in the test substance less bioavailable for degradationInitial concentration: 0.63 and 0.24 mg/kg dry wt.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	6.8 and 9.43%; ± 2.30 and±1.95 (n=4); 2 mo; Not reported; Not reported
Results Details	Maximum rate: 0.11±0.04, and 0.16±0.03% of initial concentration/day
Mean Total Recovery Results and Results Per Recovery	Not reported; 14C % recovery: 61.8±5.7% and 54.6±0.4%, respectively

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A concurrent negative or positive control was not explicitly included, however this was not likely to have a substantial impact on study results. The solvent was evaporated before test start, and is unlikely to influence study results.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported and was appropriate for the study.

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Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Most test conditions were reported, with a few omissions (CEC).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was provided and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported acceptable sampling methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and between study groups were accounted for in data evaluation and were not likely to influence outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection of the target chemical and sufficient evidence was presented to confirm that the parent was disappearing due to biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were plausible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Mineralization in sludge-soil mixture
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14C uniformly ring-labeled; Sigma Chemical (St. Louis, MO, USA); Liquid; >98% (radiochemical purity) Notes: 3.5 mCi/mmol
Oxygen, pH, and CEC	aerobic; 6.6; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 15°C; Test substance mixed and allowed to sorb to dewatered activated sludge (domestic, from WWTP in Lundtofte, Denmark) for 24 h. The treated sludge was then mixed with the soil in a sludge:soil ratio of 1:100 dry wt. or tested as soil only
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 37.6% coarse sand, 37.0% fine sand, 11.8% silt, 10.6% clay, 3.0% organic matter; Not reported
Soil Classification, Microbial Biomass, and Humidity	Clayey soil (Askov, Denmark); Not reported: 40% water-holding capacity (WHC=NR)
Duration, Parameter, System, and Sampling Frequency	2 mo; radiochem. meas.; Test media placed in glass tubes, pressed into 25 mm core; tubes placed in a 200 mL glass jar with atmospheric air. Glass vial trap with KOH placed in each jar for 14CO2; Not reported
Control and Blank	Not reported; Not reported
Concentration	10000 - ca. 20000 dpm/g wet wt
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectrometry; No further details reported; Mineralization % of added 14C
Results Remarks	Reported for 1:100 mixture and soil only groups, respectively.Sorption to sludge and soil resulted in the test substance less bioavailable for degradationInitial concentration: 0.63 and 0.24 mg/kg dry wt.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	5.8 and 8.46%; ± 0.46 and±1.64 (n=4); 2 mo; Not reported; Not reported
Results Details	Maximum rate: 0.09±0.01 and 0.14±0.03% of initial concentration/day
Mean Total Recovery Results and Results Per Recovery	Not reported; 14C % recovery: 65.9±12.5 and 58.2±5.1%, respectively

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A concurrent negative or positive control was not explicitly included, however this was not likely to have a substantial impact on study results. The solvent was evaporated before test start, and is unlikely to influence study results.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported and was appropriate for the study.

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Study Citation:	Gejlsbjerg, B., Klinge, C., Madsen, T. (2001). Mineralization of organic contaminants in sludge-soil mixtures. Environmental Toxicology and Chemistry 20(4):698-705.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	789785

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Most test conditions were reported, with a few omissions (CEC).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was provided and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported acceptable sampling methods for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and between study groups were accounted for in data evaluation and were not likely to influence outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection of the target chemical and sufficient evidence was presented to confirm that the parent was disappearing due to biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were plausible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Goodin, J. D., Webber, M. D. (1992). The persistence and fate of industrial organics in sludge-treated soil. Canadian Journal of Soil Science 72(3):310-311.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1069284

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di-2-ethylhexylphthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: None; field and laboratory study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C reported; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	NR; NR; NR
Test Type, Test Temperature, and Test Details	other; NR; Studies conducted in laboratory and greenhouse; laboratory incubation experiments used seven soils, contaminated with a mixture of volatile organic contaminants (trichlorcethylene, benzene, chloroform, 1,1 -dichloroethane, toluene, o-xylene, 3-ethyltoluene, ethylbenzene, 1,3-diethylbenzene and 1,4-dichlorobenzene)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; NR; NR
Soil Classification, Microbial Biomass, and Humidity	Caledon loamy sand soil; municipal sludge 1-3% sludge dry weight: Not Reported
Duration, Parameter, System, and Sampling Frequency	NR; likely >35 weeks; NR; NR; NR
Control and Blank	NR; NR
Concentration	NR NR - NR NR
Analytical Method, Analytical Details, and Results Per Degredation Parameter	NR; 14C were recovered as CO2; Half-life
Results Remarks	16-70% of 14C recovered as CO2 from soil containins anthracene. di-2-ethylhexylphthalate and dibutylphthalate.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	<4 weeks; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	Medium	The test substance was identified by trade name or other internal designation, but characterization details were omitted that could affect interpretation of study results; however, the omission was not likely to have a substantial impact on the study results.
	Metric 2: Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was not reported
Domain 2: Test Design			

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Study Citation:	Goodin, J. D., Webber, M. D. (1992). The persistence and fate of industrial organics in sludge-treated soil. Canadian Journal of Soil Science 72(3):310-311.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1069284

Domain		Metric	EVALUATION Rating	Comments
	Metric 3:	Study Controls	Low	Details about control studies were not reported.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Very few detils reported about the test method.
	Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results (aerobic/anaerobic).
	Metric 7:	Testing Consistency	N/A	No details reported on testing consistency.
	Metric 8:	System Type and Design	Uninformative	It was not possible to determine if the system type and design (i.e., static, semi-static, and flow-through; sealed, open) were not capable of appropriately maintaining substance concentrations preventing meaningful interpretation of study results. These are serious flaws that make the study unusable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	There was incomplete reporting of outcome assessment methods.
	Metric 12:	Test Substance Purity	Uninformative	Serious uncertainties or limitations were identified in sampling methods of the outcome(s) of interest and these were likely to have a substantial impact on the results, resulting in serious flaws which make the study unusable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	There is concern that variability or uncertainty was likely to have a substantial impact on the result
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No details were reported about the statistical methods and kinetic calculations.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.

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Study Citation:	Goodin, J. D., Webber, M. D. (1992). The persistence and fate of industrial organics in sludge-treated soil. Canadian Journal of Soil Science 72(3):310-311.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1069284

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported

Overall Quality Determination — Uninformative

Study Citation:	HEL, (2018). Comparative analysis biochar and compost-induced degradation of di-(2-ethylhexyl) phthalate in soils. Science of the Total Environment 625:987-993.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829343

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in bio-amended soils.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen, pH, and CEC	not specified; 6.0 (soil), 10.0 (pig biochar), 9.3 (bamboo biochar), 8.5 (manure); 5.1 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 25°C; Background soil concentration: 8.36 mg/kg, soils amended with pig biochar (PB), bamboo biochar (BB), or composted sheep manure (M)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 16.4% clay, 45.0% silt, 38.6% sand, 3.8% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Ferrisol, collected from top 0-20 cm in Lin'an, Hangzhou, Zhejiang Province, China; Not reported: soil water ratio 5:1 w/v
Duration, Parameter, System, and Sampling Frequency	112 d; test mat.; 100 g soil packed into 150 mL wide-mouth glass bottles; 1, 3, 7, 14, 28, 56, and 112 d
Control and Blank	Not reported; Not reported
Concentration	100 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID, analytes separated on HP-5 capillary column; detection limit 0.142 mg/kg; Dried soil samples ultrasonic extracted 2x with 1:1 petroleum ether:acetone; Test substance loss
Results Remarks	No significant difference between amendments. This is due to the amendments not significantly modifying the soil pH or organic carbon content.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	90.47% (no amendment), 86.52% (PB), 85.75% (BB), 87.87% (PB-M), 89.56% (BB-M); ± 1.93% (no amendment),±1.14% (PB),±0.38% (BB),±1.28% (PB-M),±1.11% (BB-M); 112 d; Not reported; Not reported
Results Details	Half-life=24.2±1.1 d (no amendment), 27.9±0.9 d (PB), 29.6±1.4 d (BB), 25.7±0.6 d(PB-M), 24.9±3.6 d(BB-M)Rate constant=0.06±0.01 /d (no amendment), 0.07±0.004 /d (PB), 0.08±0.003 /d (BB), 0.07±0.006 /d(PB-M), 0.05±0.002 /d(BB-M)R^2=0.978 (no amendment), 0.988 (PB), 0.969 (BB), 0.974 (PB-M), 0.983 (BB-M)
Mean Total Recovery Results and Results Per Recovery	82.6%; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Autoclaved controls were not explicitly included.

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Study Citation:	HEL, (2018). Comparative analysis biochar and compost-induced degradation of di-(2-ethylhexyl) phthalate in soils. Science of the Total Environment 625:987-993.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829343

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions (soil characteristics, temperature, CEC) were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is commonly used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate; Sample frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; extraction efficiency and limit of detection were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to the results of previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	HEL, (2018). Comparative analysis biochar and compost-induced degradation of di-(2-ethylhexyl) phthalate in soils. Science of the Total Environment 625:987-993.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829343

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in bio-amended soils.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen, pH, and CEC	not specified; 5.8 (soil), 10.0 (pig biochar), 9.3 (bamboo biochar), 8.5 (manure); 4.1 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 25°C; Background soil concentration: 8.36 mg/kg, soils amended with pig biochar (PB), bamboo biochar (BB), or composted sheep manure (M)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 16.9% clay, 44.4% silt, 38.7% sand, 0.60% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Ferrisol, collected from top 0-20 cm in Lin'an, Hangzhou, Zhejiang Province, China; Not reported: soil water ratio 5:1 w/v
Duration, Parameter, System, and Sampling Frequency	112 d; test mat.; 100 g soil packed into 150 mL wide-mouth glass bottles; 1, 3, 7, 14, 28, 56, and 112 d
Control and Blank	Not reported; Not reported
Concentration	100 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID, analytes separated on HP-5 capillary column; detection limit 0.142 mg/kg; Dried soil samples ultrasonic extracted 2x with 1:1 petroleum ether:acetone; Test substance loss
Results Remarks	Amendments with pig biochar and bamboo biochar with composted sheep manure had significantly increased biodegradation after 112 days; half-lives were significantly decreased with pig biochar, pig biochar with manure, and bamboo biochar with manure amendments. Amendments increased biodegradation through the addition of nutrients and raising the soil pH.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	55.51% (no amendment), 62.03% (PB), 57.90% (BB), 57.91% (PB-M), 69.78% (BB-M); ± 6.20% (no amendment),±8.19% (PB),±5.46% (BB),±8.37% (PB-M),±4.75% (BB-M); 112 d; Not reported; Not reported
Results Details	Half-life=94.1±4.3 d (no amendment), 46.5±13.9 d (PB), 102.1±12.7 d (BB), 33.0±4.1 d(PB-M), 34.127±6.478 d(BB-M)Rate constant=0.05±0.01 /d (no amendment), 0.48±0.066 /d (PB), 0.06±0.02 /d (BB), 0.87±1.28 /d(PB-M), 0.53±0.67 /d(BB-M)R^2=0.935 (no amendment), 0.896 (PB), 0.698 (BB), 0.926 (PB-M), 0.968 (BB-M)
Mean Total Recovery Results and Results Per Recovery	104.3%; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Autoclaved controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.

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Study Citation:	HEL, (2018). Comparative analysis biochar and compost-induced degradation of di-(2-ethylhexyl) phthalate in soils. Science of the Total Environment 625:987-993.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829343

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions (soil characteristics, temperature, CEC) were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is commonly used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate; Sample frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; extraction efficiency and limit of detection were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to the results of previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Hsu, S. M., Schnoor, J. L., Licht, L. A., St Clair, M. A., Fannin, S. A. (1993). Fate and transport of organic compounds in municipal solid waste compost. Compost Science and Utilization 1(4):36-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1335742

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; bisethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	none; other; biodegradation in a field study for model development; other: not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	not reported; not reported; not reported
Test Type, Test Temperature, and Test Details	field trial; not reported; not reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay; 63% silt, 25% clay, 12% sand; 1-3% OC; not reported
Soil Classification, Microbial Biomass, and Humidity	loamy-clay topsoil; not reported: not reported
Duration, Parameter, System, and Sampling Frequency	5 yr simulation; not reported; spiked compost was applied to field plots with various vegetation; not reported
Control and Blank	not reported; not reported
Concentration	27.4 (103) kg/ha (grams)
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; EPA method 606; not reported
Results Remarks	Field data indicated that adsorption was strong, biodegradation occurred, and there was no observable volitalization, plant uptake, or vertical migration.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	not reported; not reported; not reported; not reported; not reported
Results Details	not reported
Mean Total Recovery Results and Results Per Recovery	not reported; not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups.

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Study Citation:	Hsu, S. M., Schnoor, J. L., Licht, L. A., St Clair, M. A., Fannin, S. A. (1993). Fate and transport of organic compounds in municipal solid waste compost. Compost Science and Utilization 1(4):36-48.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1335742

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable.
	Metric 8:	System Type and Design	N/A	The metric is not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Limited detail regarding the source of amended compost.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	There was insufficient data reporting.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Results for the intended outcome of interest were not reported for the target chemical.
	Metric 18:	QSAR Models	Uninformative	The model did not produce quantitative results for the target chemical.

Overall Quality Determination — Uninformative

Study Citation:	Kirchmann, H., Astrom, H., Jonsall, G. (1991). Organic pollutants in sewage-sludge .1. Effect of toluene, naphthalene, 2-methylnaphthalene, 4-n-nonylphenol and di-2-ethylhexyl phthalate on soil biological processes and their decomposition in soil. Swedish Journal of Agricultural Research 21(3):107-113.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1336411

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; Liquid; NR Notes: NR
Oxygen, pH, and CEC	aerobic; 7.3; Not reported
Test Type, Test Temperature, and Test Details	laboratory; Not reported; Not reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 13/42/55/1.77%; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Soil water potential: -30 Kpa
Duration, Parameter, System, and Sampling Frequency	80 days; test mat.; Incubation flask; Days 0, 5, 10, 20, 40, 60, and 80
Control and Blank	Not reported; Blanks were measured at days 0, 10, and 20.
Concentration	5 - 250 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-mass spectrometry.; Hewlett Packard 5890 gas chromatograph with 25 m HP-1 column, Hewlett Packard 5970 mass spectrometer.; Test material
Results Remarks	Zero-order model (Y=Y(initial) - kt). At 5 mg/(kg d): k=0.2041 (R^2=0.884). At 250 mg/(kg d): k=1.7625 (R^2=0.956).
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	At 5 mg DEHP/kg: approximately 50% removal after 20 days and 80% after 80 days. At 250 mg DEHP/kg: 25% after 20 days, 50% after 80 days.; Not reported; Not reported; Not reported; Not reported
Results Details	#Deleted
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank controls were reported.

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Study Citation:	Kirchmann, H., Astrom, H., Jonsall, G. (1991). Organic pollutants in sewage-sludge .1. Effect of toluene, naphthalene, 2-methylnaphthalene, 4-n-nonylphenol and di-2-ethylhexyl phthalate on soil biological processes and their decomposition in soil. Swedish Journal of Agricultural Research 21(3):107-113.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1336411

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity in the incubation flask were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and was appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The mass balance was not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	The kinetic calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in HSDB and ECHA

Study Citation:	Laturnus, F., Grøn, C., Mortensen, G. K., Ambus, P., Bennetzen, S., Jensen, E. S. (1999). Degradation of organic contaminants in sludge-amended agricultural soil. 5:15-20.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5693152

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; DEHP
Confidentiality, EndPoint, Type, Guideline	none; other; biodegradation in a field study; other: not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	aerobic; not reported; not reported
Test Type, Test Temperature, and Test Details	field trial; not reported; not reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sand; not reported; not reported
Soil Classification, Microbial Biomass, and Humidity	sandy soil; sewage sludge from industrial and domestic origin, from a WWTP near Copenhagen; amendments of 0-90t dry wt/ha: 60-75% water capacity was maintained by watering soil
Duration, Parameter, System, and Sampling Frequency	84 days; test mat.; green house with carrots grown in sludge amended soils under constant photon fluxes, photoperiods and temperature; not reported
Control and Blank	not reported; plant-free soil controls were included
Concentration	not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; MDL 0.01-0.04 mg/kg dw; loss of test material
Results Remarks	anaerobic conditions may have developed with the high loads of sludge amendment
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	20% degradation using sludge amendments of 90 t dw sludge/ha; 41% degradation using sludge amendments of 6 t dw sludge/ha; nearly 100% degradation when added directly to soils without amendment; not reported; 84 days; plant free systems using sludge amendments of 90 t dw sludge/ha; 7%
Results Details	not reported
Mean Total Recovery Results and Results Per Recovery	method precision 10-30%; 41-125%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	Medium	The test substance was identified by acronym.
	Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Control group details were limited.

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Study Citation:	Laturnus, F., Grøn, C., Mortensen, G. K., Ambus, P., Bennetzen, S., Jensen, E. S. (1999). Degradation of organic contaminants in sludge-amended agricultural soil. 5:15-20.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5693152

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Applied target chemical concentrations were not reported.
	Metric 6:	Testing Conditions	Low	There were omissions in testing conditions.
	Metric 7:	Testing Consistency	Low	Test conditions were not monitored/reported.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail regarding the outcome assessment methodology.
	Metric 12:	Test Substance Purity	Low	Detail regarding the sampling methods were omitted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical, extraction efficiency of the target chemical, percent recovery of the target chemical, or mass balance were not measured or reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 5°C; Triplicate samples were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	7.0; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-119; K1=0.0044/day; half-life=158 days; after day 119 half-life=224 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the soil.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 10°C; Triplicate samples were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	12.9; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-40; K1=0.0081/day; half-life=86 days; after day 40 half-life=187 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	21.4; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-28; K1=0.0134/day; half-life=52 days; after day 28 half-life=73 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 5°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	3.7; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-100; K1=0.0023/day; half-life=301 days; after day 100 half-life=>1 year
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 10°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	8.8; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-50; K1=0.0055/day; half-life=125 days; after day 50 half-life=337 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	20.3; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-23; K1=0.0127/day; half-life=55 days; after day 23 half-life=150 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	1.6 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	14.0; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-40; K1=0.0087/day; half-life=79 days; after day 40 half-life=109 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	3.2 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	25.8; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-29; K1=0.0081/day; half-life=86 days; after day 29 half-life=126 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	9.9 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	77.5; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-26; K1=0.0078/day; half-life=89 days; after day 26 half-life=127 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Degradation in sludge amended soil
Solvent, Reactivity, Storage, Stability	HPLC grade hexane; NR; NR; NR
Radiolabel, Source, State, Purity	ring-UL-14C; Analytical from Merck (Germany); Labeled from Sigma (USA); NR; Analytical grade; >99% radio-chemical purity Notes: Radioactive DEHP 188.7 MBq/mmol
Oxygen, pH, and CEC	aerobic; 5.9; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Triplicate samples of soil amended with sludge (58:1 dw:dw) were incubated for 140 days under aerobic conditions.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 9.8% clay/11.3% silt/78,9% sand/2.5% organic carbon; not reported
Soil Classification, Microbial Biomass, and Humidity	5-20 cm top depth from field site at Research Center Foulum, Denmark; not reported: 75% of field capacity
Duration, Parameter, System, and Sampling Frequency	140 d; CO2 evolution; Glass vials connected to scintillation vials that served as an external 14CO2 trap.; 1-2 times/wk
Control and Blank	not reported; Sterile (autoclaved samples)
Concentration	35.1 µg/g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	The content of the external CO2 traps was mixed directly with scintillation cocktail. Measured by GC with FID.; All samples were counted for 3 min in a scintillation counter.; mineralization rate ng/g dry weight/day
Results Remarks	two phases: phase I follows first-order kinetics; phase II follows fractional power kinetics.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	315.2; not reported; not reported; not reported; not reported
Results Details	first order kinetics for day 0-29; K1=0.090/day; half-life=77 days; after day 29 half-life=100 days
Mean Total Recovery Results and Results Per Recovery	not reported; The total recovery of radiolabeled material in the experiments was 67-90% of the radioactivity added (mean recovery of all samples=79%). The recovery was calculated as the sum of the 14CO2 produced and the 14C remaining in the sludge amended soil.

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Lindequist Madsen, P., Bandsholm Thyme, J., Henriksen, K., Moldrup, P., Roslev, P. (1999). Kinetics of di-(2-ethylhexyl)phthalate mineralization in sludge-amended soil. Environmental Science & Technology 33(15):2601-2606.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334106

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Mathur, S. P. (1974). Respirometric evidence of the utilization of Di-octyl and Di-2-ethylhexyl phthalate piasticizers. Journal of Environmental Quality 3(3):207-209.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334165

EXTRACTION

Parameter	Data
CASRN and Test Material	not reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; other; degradation in soil; other: Non-guideline Warburg Respirometric Test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Eastman Kodak Co.; NR; NR Notes: NR
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 22-25°C; 3 soil enrichment samples were prepared by amending with 0.3 mL DOP, DEHP, or DiBP for 14 weeks
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	loam; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Grenville loam (North Caldwell field of Central Experimental Farm, Ottawa); Not reported: 66% moisture content; 10ml water/100g soil
Duration, Parameter, System, and Sampling Frequency	8 hours; test material; oxygen consumption; Warburg flasks; periodically
Control and Blank	Not reported; One unamended flask included as control; preincubated for 14 wks without PAE amendment
Concentration	Not specified - mL
Analytical Method, Analytical Details, and Results Per Degredation Parameter	TLC and UV photometry; empirical estimations made from silica gel extracts of TLC plate scrapings; % decrease from endogenous consumption of oxygen
Results Remarks	Respiration response in enrichment cultures after 8 hours: 15.71% increase observed, 29.65% increase observed, and -38.81% decrease observed in soils amended with DOP, DEHP, and DiBP, respectively. DEHP suppressed the oxygen consumption in the unamended soil and the soil amended with DiBP. DEHP oxygen consumption was enhanced in the soil previously amended with DOP and DEHP.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	44.00% decrease in respiration from unamended soil (study control) after 6 hrs; Not reported; 8 hours; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The source was reported, purity was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.

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Study Citation:	Mathur, S. P. (1974). Respirometric evidence of the utilization of Di-octyl and Di-2-ethylhexyl phthalate piasticizers. Journal of Environmental Quality 3(3):207-209.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1334165

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Applied target chemical concentrations were not explicitly stated; however, sufficient detail was provided and the omissions were not likely to have a substantial impact on the results.
	Metric 6:	Testing Conditions	Medium	Soil characteristics were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system was appropriate; however, note that flasks were ”loosely’ covered.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Soil source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Limited detail regarding this metric; extract of TLC scrapings were used for analysis.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical detail was omitted; % recovery, mass balance, MDL.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information on analytical methods, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Medium

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Other; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	NR; NR; NR
Test Type, Test Temperature, and Test Details	field trial; NR; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; NR; NR
Soil Classification, Microbial Biomass, and Humidity	NR; NR: NR
Duration, Parameter, System, and Sampling Frequency	189 d; Test material; Outdoors with controlled weathering; NR
Control and Blank	NR; NR
Concentration	127.32 - mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	NR; Not Reported; Not Reported
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	30%; Not Reported; 189 d; NR; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable for this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Cheng HF et al; Water Sci Technol 41: 1-6 (2000)HEROID 1336680

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Other; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Oxygen, pH, and CEC	Aerobic; NR; NR
Test Type, Test Temperature, and Test Details	not specified; NR; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; NR; NR
Soil Classification, Microbial Biomass, and Humidity	NR; NR: NR
Duration, Parameter, System, and Sampling Frequency	NR; NR; NR; NR
Control and Blank	NR; NR
Concentration	NR -
Analytical Method, Analytical Details, and Results Per Degredation Parameter	NR; Not Reported; Not Reported
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	NR; Not Reported; NR; NR; Not Reported
Results Details	Half-life = 31 - 98 d
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable for this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Wams TJ; Sci Total Environ 66: 1-16 (1987)HEROID 683857 or 5709309

Study Citation:	Petersen, S. O., Henriksen, K., Mortensen, G. K., Krogh, P. H., Brandt, K. K., Sørensen, J., Madsen, T., Petersen, J., Grøn, C. (2003). Recycling of sewage sludge and household compost to arable land: Fate and effects of organic contaminants, and impact on soil fertility. Soil & Tillage Research 72(2):139-152.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1336804

EXTRACTION

Parameter	Data
CASRN and Test Material	NR; di(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: Field application of sewage sludge; compost; manure
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; sewage sludge (SSh and SSl); compost; manure; NR; NR Notes: Sewage sludge (SSh) derived from a pre-settling tank with chemical P removal; SSlow-derived from an aeration tank & dewatered; compost-municipal compost kitchen waste; solid pig manure
Oxygen, pH, and CEC	aerobic; 6.8 (Askov); 6.3 (Lundgaard); 10 (Askov); 6.7 (Lundgaard)
Test Type, Test Temperature, and Test Details	field trial; average 7.6°C; calculated applied DEHP (mg/kg) over 3 year period 0.238 (SSh); 0.092 (SSl); 0.290 (compost); 0.004 (manure)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Approx. 13% clay; 22% silt; 65% sand (Askov); 5.3% clay; 8.3% silt; 86.4% sand (Lundgaard); not applicable
Soil Classification, Microbial Biomass, and Humidity	sandy loam (Askov); loamy sand (Lundgaard); field study: field study
Duration, Parameter, System, and Sampling Frequency	3 years; test mat.; field test; start and completion of test
Control and Blank	NR; unamended control
Concentration	0.4 - 55 mg/kg DM
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS selected ion monitoring; detection limit = 0.05 mg/kg dry weight; Not Reported
Results Remarks	DEHP final concentrations were <0.05 (less than the detection limit) to 0.103 mg/kg in all tests, specific soil data were not reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR however, approx. 85% recovery from SShigh sample from pot experiment in figure 6; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common name.
	Metric 2:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable.

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Study Citation:	Petersen, S. O., Henriksen, K., Mortensen, G. K., Krogh, P. H., Brandt, K. K., Sørensen, J., Madsen, T., Petersen, J., Grøn, C. (2003). Recycling of sewage sludge and household compost to arable land: Fate and effects of organic contaminants, and impact on soil fertility. Soil & Tillage Research 72(2):139-152.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1336804

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	The system type and design were not capable of appropriately maintaining were not described but the deviation was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, absence of details was not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Limited information on the results were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described, these differences were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen, pH, and CEC	aerobic; not reported; not reported
Test Type, Test Temperature, and Test Details	laboratory; 28°C; Tests were also done at 10 and 35°C
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; organic carbon: 2%; 3.3%; 1.6%; not reported
Soil Classification, Microbial Biomass, and Humidity	not reported; not reported: 30% water holding capacity
Duration, Parameter, System, and Sampling Frequency	30 days; test mat.; flask; every 5 days
Control and Blank	not reported; not reported
Concentration	500 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; degradation rate
Results Remarks	half-life: 17.3 days (2% OC); 36.5 days (3.3% OC); 46.2 days (1.6%OC). % degradation was 21.5% (at 21.5°C), 28.5% (at 28°C), 33.2% (at 35°C)
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.040/day (2% OC); 0.019/day (3.3% OC); 0.015/day (1.6%OC); Not Reported; Not Reported; Not Reported; Not Reported
Results Details	First-order kinetics with no appreciable lag phase.
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The test source and purity were not reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Medium	The test substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5348332

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details on the test method were not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	Some test conditions were not reported but may be available in the cited reference.
	Metric 7:	Testing Consistency	Medium	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details of the inoculum were not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling method details were not reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not addressed but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Result details were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — Medium

* Related References: Cites: Chen Y, Shen D, Hu Z, Liu X, Wu D, Zhao D, Zhang J (1997) Huanjing Kexue Xuebao 17:340. (not in HERO)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	label used but details not included; NR; NR; NR
Oxygen, pH, and CEC	aerobic; not reported; not reported
Test Type, Test Temperature, and Test Details	laboratory; not reported; 3 New Mexico soils
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; not reported; not reported
Soil Classification, Microbial Biomass, and Humidity	not reported; not reported: 30% water holding capacity
Duration, Parameter, System, and Sampling Frequency	not reported; 14CO2 evolution; not reported; not reported
Control and Blank	not reported; not reported
Concentration	2 - 20 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	not reported; not reported; initial degradation rate in 3 soils
Results Remarks	Initial rapid rate, with little or no lag, followed by a slowing of the rate with time. At 20 mg/kg, initial rates are 2- to 4- fold slower. A similar rate pattern was observed in sewage sludge amended soil.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.035/day; 0.069/day; 0.058/day; not reported; not reported; Not Reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	Medium	The test source and purity were not reported but may be available in the cited reference.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
Metric 4:	Test Substance Stability	Medium	The test substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	Details on the test method were not reported but may be available in the cited reference.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5348332

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Low	Some test conditions were not reported but may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Details of the inoculum were not reported but may be available in the cited reference.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were not reported but may be available in the cited reference.
	Metric 12:	Test Substance Purity	Medium	Sampling method details were not reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not addressed but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Result details were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites: HERO ID: 2161315: Fairbanks BC, O'Connor GA, Smith SE (1985) J Environ Qual 14:479 (not in distiller)

Study Citation:	Roslev, P., Madsen, P. L., Thyme, J. B., Henriksen, K. (1998). Degradation of phthalate and Di-(2-Ethylhexyl)phthalate by indigenous and inoculated microorganisms in sludge-amended soil. Applied and Environmental Microbiology 64(12):4711-4719.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	683768

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-Ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Non-guideline
Solvent, Reactivity, Storage, Stability	U-14-C ring-labelled DEHP was dissolved in hexane.; NR; NR; NR
Radiolabel, Source, State, Purity	[U-14-C ring] DEHP; Merck, Darmstadt, Germany; NR; Analytical grade. Radiolabeled was >99%.
Oxygen, pH, and CEC	aerobic; Soil pH: 5.9; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Soil was amended with dewatered sewage sludge from a municipal wastewater treatment plant (Soil:sludge 58:1 dw/dw). Organic matter content of sludge was 28.5%.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Soil water capacity was 75% of the field capacity
Duration, Parameter, System, and Sampling Frequency	84 days; CO2 evolution; 55 mL glass vial attached to a 20mL glass scintillation vial for CO2 trapping.; 15 samples were taken between day 0 and day 83
Control and Blank	Samples autoclaved at 600°C; Not reported
Concentration	4.1 nmol per g dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; DEHP extracted from dried soil with 4 hexane extractions (15mL for 30 min in ultrasonic water bath). Extract cleaned up over a 15% deactivated alumina column. 20mL hexane, 20mL 10% DCM in hexane, 20mL 50:50 DCM:hexane (final eluent collected).; DEHP mineralization half-life in initial phase (0-28 days) and late phase (28-84 days)
Results Remarks	Assays were done with sludge mixed with fine granular quartz particles as an artificial surface. Initial phase degradation half life: 39 days; late phase degradation half life: 51 days.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Initial phase: 58 days; Late phase: 147 days; Not reported; Not reported; Not reported; Not reported
Results Details	Best depletion fit was an exponential function for the initial phase and a fractional power function for the late phase.
Mean Total Recovery Results and Results Per Recovery	Recovery of DEHP from activated columns was 95%; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sterile controls were used.

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Study Citation:	Roslev, P., Madsen, P. L., Thyme, J. B., Henriksen, K. (1998). Degradation of phthalate and Di-(2-Ethylhexyl)phthalate by indigenous and inoculated microorganisms in sludge-amended soil. Applied and Environmental Microbiology 64(12):4711-4719.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	683768

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the method.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the desired outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling frequency was reported but some details regarding the sampling methodology were omitted. This did not impact the interpretation of study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were not reported but their omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The extraction recovery was not reported but the column clean-up recovery was.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in soil under simulated outdoor conditions
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 7.6; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C (for 8 h), 10°C (for 16 h); average: 13.5°C; Test substance dissolved in unreported solvent mixed into 50 g dry wt. soil
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silt loam; 23% sand, 49% silt, 28% clay, 2.14% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Brownearth; Not reported: 40% of the biomass maximum water holding capacity (WHC: 48.0 g water/100 g) for days 1- 8; 100% MWC for unreported period of time; 10% MCW until day 100
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Biometer tube with soil samples, with three washing bottle traps containing ethylene glycol (for volatile organics), sulfuric acid (volatile basic substances), and NaOH (for 14CO2).; 0, 4, 8, 15/16, 32/33, 64, and 99/100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Test substance disappearance
Results Remarks	Non-extractable residues: 26%/64d and 37%/100d, as a percentage of initial total radioactivity; No metabolites detected.14CO2 evolution: 22%/64d and 33%/100d
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 31 d; Not reported; Not reported
Results Details	Calculated using first order kinetics (correlation coefficient: -0.995)
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in soil following BBA Guidelines (1986)
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 7.6; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20±1°C; Test substance dissolved in unreported solvent mixed into 50 g dry wt. soil
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silt loam; 23% sand, 49% silt, 28% clay, 2.14% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Brownearth; Not reported: 40% of the biomass maximum water holding capacity (WHC: 48.0 g water/100 g)
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Biometer tube with soil samples, with three washing bottle traps containing ethylene glycol (for volatile organics), sulfuric acid (volatile basic substances), and NaOH (for 14CO2).; 0, 4, 8, 15/16, 32/33, 64, and 99/100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Test substance disappearance
Results Remarks	Non-extractable residues: 42%/64d and 40%/100d, as a percentage of initial total radioactivity; No metabolites detected.14CO2 evolution: 40%/64d and 47%/100d, as a percentage of initial total radioactivity
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 20 d; Not reported; Not reported
Results Details	Calculated using first order kinetics (correlation coefficient: -0.953)Corrected half-life: 30 d, based on the assumption that the half-life increases by 50% at the lower average outdoor temperature compared to the test system temperature
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in soil under simulated outdoor conditions
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 6.9; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C (for 8 h), 10°C (for 16 h); average: 13.5°C; Test substance dissolved in unreported solvent and added to whole soil fraction as batch before addition to test system
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 78% sand, 18% silt, 4% clay, 1.09% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Plaggenesch; Not reported: 40% of the biomass maximum water holding capacity (WHC: 24.9 g water/100 g) for days 1 - 8 and 85 - 100; 100% MWC for unreported time; 10% MWC until day 85
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Biometer tube with soil samples, with three washing bottle traps containing ethylene glycol (for volatile organics), sulfuric acid (volatile basic substances), and NaOH (for 14CO2).; 0, 4, 8, 15/16, 32/33, 64, and 99/100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Test substance disappearance
Results Remarks	Non-extractable residues: 8.4%/64d and 9.7%/100d, as a percentage of initial total radioactivity; No metabolites detected.14CO2 evolution: 7.5%/64d and 12%/100d
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 170 d; Not reported; Not reported
Results Details	Calculated using first order kinetics (correlation coefficient: -0.996)
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in soil following BBA Guidelines (1986)
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 6.9; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 20±1°C; Test substance dissolved in unreported solvent and added to whole soil fraction as batch before addition to test system
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 78% sand, 18% silt, 4% clay, 1.09% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Plaggenesch; Not reported: 40% of the biomass maximum water holding capacity (WHC: 24.9 g water/100 g) for days 1 - 8 and 85 - 100; 100% MWC for unreported time; 10% MWC until day 85
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Biometer tube with soil samples, with three washing bottle traps containing ethylene glycol (for volatile organics), sulfuric acid (volatile basic substances), and NaOH (for 14CO2).; 0, 4, 8, 15/16, 32/33, 64, and 99/100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Test substance disappearance
Results Remarks	Non-extractable residues: 14%/64d and 16%/100d, as a percentage of initial total radioactivity; No metabolites detected.14CO2 evolution: 1.8%/64d and 2.6%/100d
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 68 d; Not reported; Not reported
Results Details	Calculated using first order kinetics (correlation coefficient: -0.976)Corrected half-life: 102 d, based on the assumption that the half-life increases by 50% at the lower average outdoor temperature compared to the test system temperature
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in outdoor field grown with barley or kept fallow
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 6.9; Not reported
Test Type, Test Temperature, and Test Details	field trial; Average 12.8°C; Dissolved test substance added to sieved soil, mixed, and distributed equally on the surface of the lysimeters. Samples collected at 0-5 cm, 5-10 cm (not day 0) and 10-20 cm (at day 100)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 78% sand, 18% silt, 4% clay, 1.09% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Plaggenesch; Not reported: 170 mm rainfall, no significant leaching assumed; Biomass maximum water holding capacity: 24.9 g water/100 g
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Two to three lysimeters placed in fallow and barley fields starting on April 23, 1990; 0, 8, 32, 64 (fallow field only), and 100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Total residue of 3 sampled layers
Results Remarks	No MEHP metabolite detected. Trace phthalic acid was detected as diethyl derivative
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 54 (fallow field) and 200 d (barley field); Not reported; Not reported
Results Details	Calculated using first order kinetics . Correlation coefficient: -0.946 (fallow field) and -0.587 (barley field)
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Biodegradation in outdoor field grown with barley or kept fallow
Solvent, Reactivity, Storage, Stability	Solvents for chromatography (Merck); acetone/hexane used for extraction; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Sigma; Deisenhofen, Germany; NR; >99% Notes: Specific activity: 12.4 mCi/mmol; Non-labelled DEHP, 98% purity, purchased from Merck: Darmstadt, Germany
Oxygen, pH, and CEC	not specified; 7.6; Not reported
Test Type, Test Temperature, and Test Details	field trial; Average 14.1°C; Dissolved test substance added to sieved soil, mixed, and distributed equally on the surface of the lysimeters. Samples collected at 0-5 cm, 5-10 cm (not day 0) and 10-20 cm (at day 100)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silt loam; 23% sand, 49% silt, 28% clay, 2.14% organic carbon; Not reported
Soil Classification, Microbial Biomass, and Humidity	Brownearth; Not reported: 210 mm rainfall, no significant leaching assumed; water holding capacity: 48.0 g water/100 g
Duration, Parameter, System, and Sampling Frequency	100 d; radiochem. meas.; Two to three lysimeters placed in fallow and barley fields starting on June 21, 1990; 0, 8, 32, 64 (fallow field only), and 100 d
Control and Blank	Not reported; Not reported
Concentration	Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counting (14C compounds in solution), Harvey Oxidizer 5000 (total radioactive residue in soil); LCS with scintillation counter TriCarb 2200 CA; 14CO2 produced trapped in alkaline scintillation solution and analyzed via LSC; Total residue of 3 sampled layers
Results Remarks	No MEHP metabolite detected. Trace phthalic acid was detected as diethyl derivative
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; 21 (fallow field) and 14 d (barley field); Not reported; Not reported
Results Details	Calculated using first order kinetics. Correlation coefficient: -0.853 (fallow field) and -0.999 (barely field)
Mean Total Recovery Results and Results Per Recovery	Extraction after 24h incubation in soil (n=2); 77±8%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance purity and source were reported and acceptable.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A concurrent blank was not run for the biodegradation tests, however a blank was included for calculating extraction recovery percentage. The lack of a concurrent blank is not expected to significantly impact study results.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study; storage conditions were not reported but this omission was unlikely to have significant impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and were appropriate for the test substance.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and is routinely used for similar study types and is appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported accepted sampling methods for the chemical and media which address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical extraction efficiency and transformation products were reported. Sufficient evidence was presented to confirm that the parent compound disappearance was not likely due to processes other than biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and appropriately address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Rüdel, H., Schmidt, S., Kordel, W., Klein, W. (1993). Degradation of pesticides in soil: comparison of laboratory experiments in a biometer system and outdoor lysimeter experiments. Science of the Total Environment 132(2-3):181-200.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	773059

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

* Related References: Cited in ECHA

Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Laboratory Degradation Studies
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbon-14-labelled; Radiochemical Centre, Amersham; NR; sp act. 5¿tCi/mg, radiochemical purity 99% Notes: Mixed with varying amounts of inactive DEHP from Fluka AG, Switzerland (purity >99%) before use
Oxygen, pH, and CEC	aerobic; 7.3; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 22°C; Soil and water shaken for 5 days in a 1-L wide-mouth bottle with gas inlet and outlet with oxygen atmosphere and then shaken for 33 days with test substance
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; sand 8%, silt 75%, clay 17%, organic matter 2.45%; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	33 days; radiochem. meas.; wide mouth bottle; at 5, 9, 13, 22, 28 and 33 days
Control and Blank	Not reported; Not reported
Concentration	7.3 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counter Betaszint BF 8000 from Berthold and GC-MS; Not reported; 14CO2 detection and GC analysis of test substance degradation products
Results Remarks	Aerobic biodegradation occurred
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.66% 14CO2/day formed; Not reported; 5, 9, 13, 22, 28 and 33 days; Not reported; Not reported
Results Details	9.5% 14CO2 in 9 days and 21.9% after 33 days
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing condition reporting but the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details regarding statistical methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however no blanks or reference compounds were included in this experiment.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

* Related References: Cited in ECHA

Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: closed aerated laboratorysoil-plant systems
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbon-14-labelled; Radiochemical Centre, Amersham; NR; sp act. 5¿tCi/mg, radiochemical purity 99% Notes: Mixed with varying amounts of inactive DEHP from Fluka AG, Switzerland (purity >99%) before use
Oxygen, pH, and CEC	aerobic; 6.4; Not reported
Test Type, Test Temperature, and Test Details	laboratory; Not reported; Soil and water shaken for 5 days in a 1-L wide-mouth bottle with gas inlet and outlet with oxygen atmosphere and then shaken for 33 days with test substance
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; sand 32.4%, silt 27.4%, clay 33.6%, coarse matter 6.6%; organic matter, 3.15%; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	7 days; radiochem. meas.; Plants grown in desiccators connected with a pump and trapping system for organic volatiles and 14CO2; 1 time
Control and Blank	Not reported; Not reported
Concentration	1 - 3.33 mg/kg dry soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Liquid scintillation counter Betaszint BF 8000 from Berthold and GC-MS; Not reported; 14CO2 detection and GC analysis of test substance degradation products
Results Remarks	Aerobic biodegradation occurred
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	8.2% 14CO2; Not reported; 7 days; Not reported; Not reported
Results Details	8.34% and 8.18% 14CO2 in 7 days; 0.21% and 0.64% organic volatiles for 1 and 3.3 mg/kg studies, respectively
Mean Total Recovery Results and Results Per Recovery	~83 and 89% in 1 and 3.3 mg/kg studies, respectively (sum soil and plants); Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing condition reporting but the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding statistical methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however no blanks or reference compounds were included in this experiment.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5707607

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

Study Citation:	Shanker, R., Ramakrishna, C., Seth, P. K. (1985). Degradation of some phthalic-acid esters in soil. Environmental Pollution Series A: Ecological and Biological 39(1):1-7.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1333345

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl hexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: None
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; BDH, Great Britain and Ranbaxy Laboratories Ltd., India.; NR; NR Notes: NR
Oxygen, pH, and CEC	aerobic/anaerobic; 8.2; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 30±1°C; 10g garden soil (Alluvial, sieved and dried) spiked and mixed with methanol containing DEHP. Left overnight to evaporate then were plugged and mixed before moisture adjustment and incubation. Anaerobic tests were done by flooding tubes with sterile water
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: 60%
Duration, Parameter, System, and Sampling Frequency	30 days; test mat.; Closed 25mL Erlenmeyer flasks; Sampling was done on days 0, 5, 10, 20, and 30
Control and Blank	Autoclaved soil was used as a control.; Samples without added DEHP were used to determine background levels in the soil.
Concentration	500 µg/g soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC with a UV detector.; Soil samples without DEHP were used to determine background levels of phthalates.; DEHP concentration
Results Remarks	Autoclaved controls concentration after 30 days under aerobic and anaerobic conditions, respectively (µg/g soil): 471±4 and 478±7.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	DEHP concentration (µg/g soil) under aerobic conditions on day 0, 5, 10, 20, 30: 480±9 (0% Removal), 430±8 (10% Removal), 320±1 (33% Removal)1, 120±4 (75% Removal), 40±8 (92% Removal). Anaerobic: 478±9 (0% Removal), 460±8 (4% Removal), 439±6 (9% Removal), 389±5 (19% Removal), 318±7 (34% Removal).; Standard errors reported for each data point.; Not reported; Not reported; Not reported
Results Details	Phthalic acid was detected in concentrations of 0-11 µg/g soil
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not clearly reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.

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Study Citation:	Shanker, R., Ramakrishna, C., Seth, P. K. (1985). Degradation of some phthalic-acid esters in soil. Environmental Pollution Series A: Ecological and Biological 39(1):1-7.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1333345

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Some of the details regarding the test substance preparation and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The soil was sufficiently described for the purposes of the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were clearly reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainties in the concentration measurements were reported and were unlikely to impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate and no kinetic calculations were presented.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Tran, B. C., Teil, M. J., Blanchard, M., Alliot, F., Chevreuil, M. (2015). Fate of phthalates and BPA in agricultural and non-agricultural soils of the Paris area (France). Environmental Science and Pollution Research 22(14):11118-11126.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2914670

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Diethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Monitoring of phthalate concentrations in sludge samples spread over agricultural soil and assessment of their fate over time and soil depth
Solvent, Reactivity, Storage, Stability	isooctane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Supelco (via Sigma-Aldrich); Solution; NR Notes: DEHP; a standard solution of six phthalates in isooctane (DMP, DEP, DnBP, BBP, DEHP, DnOP)
Oxygen, pH, and CEC	aerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	other; Not reported; Sewage sludge spread over agricultural soil; DEHP soil half-life was estimated from a linear regression of the concentrations in 0–20 cm soil horizon for the period from March 2011 (after sludge spreading) to July 2011
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Organic carbon = 10 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Agricultural soil; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	March 2011 to July 2011; test mat.; Not Reported; Not reported
Control and Blank	Not reported; Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/MS with a 7890 A GC coupled to a 5975 A MS (Agilent Technologies, Massy, France); LOD=125 ng/mL (additional details cited to Appendix 5); Half-life based on test material disappearance
Results Remarks	Not reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	64 days; r=0.998; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Recoveries ranged from 55-160% (details cited to Appendix 5)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance was identified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Tran, B. C., Teil, M. J., Blanchard, M., Alliot, F., Chevreuil, M. (2015). Fate of phthalates and BPA in agricultural and non-agricultural soils of the Paris area (France). Environmental Science and Pollution Research 22(14):11118-11126.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2914670

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	Medium	Some details were missing, but this was not likely to have affected the interpretation of the result.
	Metric 7:	Testing Consistency	Medium	Some study details were not reported; however, these omissions were not likely to have affected the interpretation of the result.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	Medium	Details on sampling were not provided.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Loss due to biodegradation vs adsorption was not evaluated; however, half-life is reported for overall disappearance and not specifically related to biodegradation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Numerical results were not reported. Analytical details are in an appendix that was not readily available.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some details were omitted; however, these omissions were not likely to have had a substantial impact on the study results (standard deviation bars were shown in the graph).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Model; other: First-order model derived from batch experiment results reported in another study
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	14C-DEHP; NA; NA; NA Notes: Model based on a study reported in other literature source, the test substance characteristics of which were not reported
Oxygen, pH, and CEC	anaerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	other; 5, 10, and 20°C; 21 g soil and 2 g sludge
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	approx. 125 d; radiochem. meas.; Not reported; Not reported
Control and Blank	Not applicable; Not applicable
Concentration	3.4 µg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not applicable; Not applicable; Predicted percentage of non-degradable test substance
Results Remarks	First order rate constant determined by study results reported in depth in other sources S=S_0(1 - a)e^(-kt) + aS_0where S=current [DEHP]; S_0=initial [DEHP]; k=first order rate coefficient; a= non-degradable fraction of DEHP
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	60, 55, 50%; Not reported; Not applicable; Not applicable; Not applicable
Results Details	first order rate constant: 0.007, 0.014, and 0.028/day, per temperature respectively
Mean Total Recovery Results and Results Per Recovery	Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was clearly identified.
	Metric 2: Test Substance Purity	N/A	Study is a model based on secondary source data. The metric is not applicable to this study type.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4: Test Substance Stability	N/A	The metric is not applicable to this study type.

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Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations based on secondary source data were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	High	The model had an unambiguous endpoint and showed evidence for goodness of fit.

Overall Quality Determination — High

Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Model; other: First-order model derived from batch experiment results reported in another study
Solvent, Reactivity, Storage, Stability	Methanol; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: Model based on a study reported in other literature source, the test substance characteristics of which were not reported
Oxygen, pH, and CEC	anaerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	other; 35°C; Secondary sludge from continuous-flow stirred-tank reactor
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	approx. 55 d; not specified; Not reported; Not reported
Control and Blank	Not applicable; Not applicable
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not applicable; Not applicable; Predicted percentage of non-degradable test substance
Results Remarks	First order rate constant determined by study results reported in depth in other sources S=S_0(1 - a)e^(-kt) + aS_0where S=current [DEHP]; S_0=initial [DEHP]; k=first order rate coefficient; a= non-degradable fraction of DEHP
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	50%; Not reported; Not applicable; Not applicable; Not applicable
Results Details	first order rate constant:0.045/day
Mean Total Recovery Results and Results Per Recovery	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.

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Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations based on secondary source data were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	High	The model had an unambiguous endpoint and showed evidence for goodness of fit.

Overall Quality Determination — High

Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Model; other: First-order model derived from continuous-flow stirred-tank reactor experiment results reported in another study
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: Model based on a study reported in other literature source, the test substance characteristics of which were not reported
Oxygen, pH, and CEC	anaerobic; Not reported; Not reported
Test Type, Test Temperature, and Test Details	other; 35°C; Secondary sludge (first study) or mixture of primary and secondary sludge (second study)
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported
Duration, Parameter, System, and Sampling Frequency	approx. 250 d; not specified; Continuous-flow stirred-tank reactor; Not reported
Control and Blank	Not applicable; Not applicable
Concentration	3.4 µg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not applicable; Not applicable; Predicted percentage of non-degradable test substance
Results Remarks	First order rate constant determined by study results reported in depth in other sources S=S_inf[(1 + akT)/(1 + kT)]*[1 - e^(((-k+1)/T)t)] + S_0e^(((-k+1)/T)t)where S=effluent [DEHP]; S_0=influent [DEHP]; k=first order rate coefficient; a= non-degradable fraction of DEHP; T=hydraulic retention time
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	25 and 30%; Not reported; Not applicable; Not applicable; Not applicable
Results Details	first order rate constant: 0.07 and 0.03/ day , per study respectively
Mean Total Recovery Results and Results Per Recovery	Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.

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Study Citation:	Vavilin, V. (2007). Corrected first-order model of DEHP degradation. Chemosphere 68(10):1992-1995.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698327

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations based on secondary source data were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	High	The model had an unambiguous endpoint and showed evidence for goodness of fit.

Overall Quality Determination — High

Study Citation:	Vavilin, V. A. (2010). Analysis of the mechanism and mathematical modeling of diethylhexylphthalate degradation in aquatic environment. Water Resources 37(3):399-410.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	792131

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Calculation; other: Kinetics calculation of anaerobic phthalate degradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: Experimental details described elsewhere
Oxygen, pH, and CEC	anaerobic; 5.5; Not reported
Test Type, Test Temperature, and Test Details	laboratory; Not reported; Study details reported in other source; the methanogenesis in acidogenic reactor received 144 - 169 week old leachate from an acidogenic reactor
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Not reported; Not reported
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: 65% moisture
Duration, Parameter, System, and Sampling Frequency	250 wk; test mat.; Cylindrical reactor, lysimeter, simulating a landfill; Not reported
Control and Blank	Not reported; Not reported
Concentration	7000 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; Not reported; Test substance in solution
Results Remarks	Final concentration in solution: est. 4000 ug/Ldesorption/sorption rate constants: k1/k2=0.0055/60=9E-5Desorption is the rate limiting process for DEHP degradation. Hydrolysis accounted for via appearance of MEHP.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.014%; Not reported; 250 d; Not reported; Not reported
Results Details	Degradation constant=0.0055/week for solid municipal waste
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were reported in another source and could not be assessed.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A control group was not explicitly included, however, may have been reported in the other source.

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Study Citation:	Vavilin, V. A. (2010). Analysis of the mechanism and mathematical modeling of diethylhexylphthalate degradation in aquatic environment. Water Resources 37(3):399-410.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	792131

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	Test substance preparation may have been reported in other source and could not be assessed.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable for test substance.
	Metric 6:	Testing Conditions	Medium	Many test conditions were not reported in this study, but may have been reported in another source.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	System details were not reported in this study, but may have been reported in another source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some inoculum information was reported in this study, but may have been elaborated on in another source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The calculations adequately addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	N/A	Sampling methods may have been reported in other source and could not be assessed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The model accounted for non-biodegradation related pathways.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described in depth and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

Study Citation:	Wu, K., Dumat, C., Li, H., Xia, H., Li, Z., Wu, J. (2019). Responses of soil microbial community and enzymes during plant-assisted biodegradation of di-(2-ethylhexyl) phthalate and pyrene. International Journal of Phytoremediation 21(7):683-692.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5613597

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in agricultural soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; ANPEL Laboratory Technologies Inc. (Shanghai, China); NR; 98%
Oxygen, pH, and CEC	aerobic; soil pH 6.16; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 37°C; Removal rates in soil treated with 0, 20, and 50 mg DEHP/kg soil; indigenous soil with DEHP contamination history refers to T0, T20 and T50 are spiked soils representing medium and high contamination
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; organic matter content: 10.5 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	surface soil from an agricultural field of South China Agricultural University, Guangzhou, Guangdong, China; Total biomass (nmol g/DW): 8.97±0.21; consisting of 6.21±0.14 bacterial, 0.77±0.09 fungal, 1.76±0.02 actinomycetic, 0.23±0 arbuscular mycorrhizal fungal, 2.98±0.13 Gram-positive bacterial, 0.99±0.02 Gram-negative bacterial: Not reported
Duration, Parameter, System, and Sampling Frequency	45 days; test mat.; Not specified; Not reported
Control and Blank	Not reported; Control used in this study is the test in which so was not spiked but had previous contamination (T0); sterile controls were not included
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/MS; Internal calibration performed (chrysene-d12) based on five-point calibration curves - ranging from 0–20.0 mg/mL; Removal rate%
Results Remarks	Not reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	T0: 42.21±4.1%, T20: 61.04±2.5%, T50: 51.75±3.33%; See value; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	DEHP concentrations were corrected using recoveries of surrogate standard (82.4±11.5% with phenanthrene-d10).; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	An abiotic loss control was not included.

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Study Citation:	Wu, K., Dumat, C., Li, H., Xia, H., Li, Z., Wu, J. (2019). Responses of soil microbial community and enzymes during plant-assisted biodegradation of di-(2-ethylhexyl) phthalate and pyrene. International Journal of Phytoremediation 21(7):683-692.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5613597

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Limited details on test substance preparation were provided, storage was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Some testing conditions and soil characteristics were not provided.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and was appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail regrading the outcome assessment methodology.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Loss due to abiotic process and/or volatilization were not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were limited, percent recovery, or mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results are limited due to the lack of sterile/abiotic control.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

Study Citation:	Xu, G., Li, F., Wang, Q. (2008). Occurrence and degradation characteristics of dibutyl phthalate (DBP) and di-(2-ethylhexyl) phthalate (DEHP) in typical agricultural soils of China. Science of the Total Environment 393(2-3):333-340.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698216

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemicals; NR; HPLC grade
Oxygen, pH, and CEC	aerobic; Black soil: 7.12±0.42; Fluvo-aquic soil: 7.30±0.09; Black soil (cmol/kg): 26.84±2.57; Fluvo-aquic soil: 18.74±1.21
Test Type, Test Temperature, and Test Details	laboratory; 20°C at night and 30°C during the day with irradiation.; Initial test substance concentration was below detection limit. Treatments were conducted in triplicate. Extraction and cleanup performed according to USEPA SW-846 method 8016A
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; Organic matter (g/kg), Black soil: 32.2±1.5; Fluvo-aquic soil: 10.5±0.8; Not reported
Soil Classification, Microbial Biomass, and Humidity	Black soil and fluvo-aquic soil; Not reported: 30%
Duration, Parameter, System, and Sampling Frequency	Not reported; test mat.; 6 samples taken at each site to form homogenate. 0-20 cm depth samples taken.; Not reported
Control and Blank	Autoclaved samples used as sterile control (120°C for 20 min); Not reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Detection limit: 0.01mg/kg; Test material analysis
Results Remarks	Not reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Black soil: k=0.026; Half-life (days): 26.3; Fluvo-aquic soil: k=0.023; Half-life (Days): 30.8; Black soil: k=0.001; Half-life (days): 0.7; Fluvo-aquic soil: k=0.001; Half-life (Days): 0.7; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	89.7%; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was HPLC grade.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Autoclaved sterile controls were used as well as blank controls.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.

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Study Citation:	Xu, G., Li, F., Wang, Q. (2008). Occurrence and degradation characteristics of dibutyl phthalate (DBP) and di-(2-ethylhexyl) phthalate (DEHP) in typical agricultural soils of China. Science of the Total Environment 393(2-3):333-340.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	698216

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across the samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling frequency and test duration were not reported but the omission is not likely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable in reference to other literature.
	Metric 18:	QSAR Models	High	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249569

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Batch test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA, USA); NR; 99.0% Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7; 11.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 30°C; soil-to-sludge ratios of 1:0.1, 1:0.2, 1:0.5, and 1:1
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; 23.0% clay, 60.5 % silt, 16.5 % sand, 13.5 g/ kg organic carbon; discussed but NR
Soil Classification, Microbial Biomass, and Humidity	Not applicable; Sewage sludge samples from Neihu municipal sewage treatment plant in Taipei: Not reported
Duration, Parameter, System, and Sampling Frequency	30 days; test mat.; bioreactor; approx. every 2 days
Control and Blank	Not applicable; autoclaved
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-ECD; Not Reported; test material
Results Remarks	k1=0.12-0.13 day-1
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	% remaining; in figures; ~2 days; Not applicable; Not applicable
Results Details	t1/2=5.3-5.8 days, r=0.93-0.99
Mean Total Recovery Results and Results Per Recovery	94%; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were used.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported.
Domain 3: Test Conditions			

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Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1249569

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source was reported and the test inoculum is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some statistical details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 5.02; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Xuyi, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 12.7% clay, 80.1% silt; 7.2% sand; SOC: 12.8 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Yellow-brown earth; Bacteria: 32.0±4.2E4 CFUs/g; Fungi: 5.6±1.1E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.34 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 18%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 5.33; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Zhaoqing, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 27.1% clay, 53.7% silt; 19.2% sand; SOC: 23.2 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Latosol; Bacteria: 10.7±0.9E4 CFUs/g; Fungi: 100.2±6.2E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.32 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 15%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 5.94; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Yichang, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 11.9% clay, 64.5% silt; 23.6% sand; SOC: 15.4 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Paddy soil; Bacteria: 21.7±2.2E4 CFUs/g; Fungi: 67.2±1.1E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.19 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 11%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 6.14; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Quanzhou, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 12.6% clay, 47.1% silt; 40.3% sand; SOC: 8.3 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Paddy soil; Bacteria: 90.0±11.5E4 CFUs/g; Fungi: 157.9±20.2E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.03 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 43%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 6.45; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Changshu, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 31.6% clay, 36.3% silt; 32.1% sand; SOC: 17.4 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Fluvo-aquic soil; Bacteria: 15.3±0.7E4 CFUs/g; Fungi: 6.7±2.2E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.10 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca.16%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 6.80; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Nanjing, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 40.4% clay, 34.3% silt; 25.3% sand; SOC: 9.3 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Yellow-brown earth; Bacteria: 46.3±3.9E4 CFUs/g; Fungi: 35.8±5.6E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.20 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 30%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7.43; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Chongzuo, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 41.3% clay, 29.5% silt; 29.2% sand; SOC: 19.2 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Latasol; Bacteria: 91.7±11.3E4 CFUs/g; Fungi: 6.3±0.4E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.91 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 40%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7.60; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Guiyang, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 48.1% clay, 41.4% silt; 10.5% sand; SOC: 47.0 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Yellow earth; Bacteria: 25.3±3.2E4 CFUs/g; Fungi: 137.8±5.6E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.29 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 31%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7.95; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Nangjing, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 30.5% clay, 33.1% silt; 36.4% sand; SOC: 15.7 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Yellow-brown earth; Bacteria: 87.3±10.4E4 CFUs/g; Fungi: 11.8±2.8E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.14 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 39%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 7.99; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Xiangxiang, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 29.5% clay, 48.9% silt; 21.6% sand; SOC: 22.4 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Paddy soil; Bacteria: 44.2±3.4E4 CFUs/g; Fungi: 3.4±1.1E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.50 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 20%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 8.20; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Hefei, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 21.4% clay, 72.7% silt; 5.9% sand; SOC: 5.8 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Paddy soil; Bacteria: 10.8±0.8E4 CFUs/g; Fungi: 2.8±0.6E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.25 mg/kg
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 7%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di (2 ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in soil microcosms
Solvent, Reactivity, Storage, Stability	acetone was used as a carrier solvent for application to soils; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; ≥99.5% analytical grade Notes: DEHP
Oxygen, pH, and CEC	aerobic; 8.69; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1°C; Dark incubation in 20g of top-20 cm soil from agricultural fields in Baoding, China
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 13.1% clay, 61.5% silt; 25.4% sand; SOC: 5.9 g/kg; Not reported
Soil Classification, Microbial Biomass, and Humidity	Fluvo-aquic soil; Bacteria: 35.6±3.5E4 CFUs/g; Fungi: 11.8±0.6E2 CFUs/g: 55% water-holding capacity using deionized water
Duration, Parameter, System, and Sampling Frequency	35 days; test mat.; brown glass bottles with tops covered with aluminum foil with five tiny holes; Collected at 0, 7 and 35 days; freeze-dried and stored (−20°C) until analysis
Control and Blank	Not reported; Acetone but no DEHP (solvent control); abiotic control (autoclaved 121°C for 30 min on 3 consecutive days)
Concentration	200 mg/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID (DEHP); LC-MS/MS (metabolites); Extraction efficiencies examined (not reported); standard calibration curves obtained using standard solutions with 0, 1, 10, 50, 100, 500, 1000 ug/L concentrations; detection limits and quantification limits in Supporting info; degradation based on %loss of DEHP (data from bar graph)
Results Remarks	Background level of DEHP=0.32 mg/kg; metabolites detected: MEHP, 2-EHA, PA, PCA and BA
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	ca. 19%; reported on bar graph; value not specified; 35 days; Not reported; Not reported
Results Details	Abiotic loss accounted for less than 20% (data not shown) indicating that DEHP degradation in these soils was mainly due to biodegradation.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	Limited detail; the test substance storage and preparation were not fully reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhu, F., Zhu, C., Doyle, E., Liu, H., Zhou, D., Gao, J. (2018). Fate of di (2-ethylhexyl) phthalate in different soils and associated bacterial community changes. Science of the Total Environment 637-638:460-469.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	4829393

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	No details indicating that test conditions across groups were inconsistent.
	Metric 8:	System Type and Design	High	The test system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The bacteria and fungi counts in soil were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Abiotic loss accounted for less than 20%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: None indicated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, USA); NR; 99.5%
Oxygen, pH, and CEC	aerobic; pH 6.85; Not Reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1 C; Prepared with non-deaerated deionized water and covered with a breathable film, and incubated in the dark up to 42 days
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; Total organic carbon 9.3 g/kg, total nitrogen 1.1 g/kg, NH4+-N 6.38 mg/kg and NO3-N 2.72 mg/kg.; Not reported
Soil Classification, Microbial Biomass, and Humidity	Agricultural soil (loamy clay) from suburban area of Nanjing, Jiangsu Province in China.; Bacterial analysis using genomic sequencing reported in supplemental information: Not reported
Duration, Parameter, System, and Sampling Frequency	42 days; test mat.; Microcosm experiment using homogeneously mixed soil (treated with acetone). 100 mL Serum bottles containing 20 g soil (dw) with 30 mL deionized water, covered with breathable film.; 0, 21 and 42 days
Control and Blank	Not reported; Uncontaminated soil treated with the same amount of acetone solvent as the test experiments
Concentration	100 - mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Soil samples were extracted via sonication with acetone and hexane (1:1, v/v) and then analyzed with GC-FID.capillary column (30mx 0.32mmx 0.25 um, J&W Scientific Inc., Folsom, USA).; Agilent 7890A gas chromatography flame- ionization detector (GC-FID, Agilent, USA) with a HP-5. Capillary column (30mx 0.32mmx 0.25 um, J&W Scientific Inc., Folsom, USA).; % degradation of DEHP
Results Remarks	High amounts of 2-ethylhexanol was detected indicating there was a lack of efficient degraders.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	<40% degraded after 42 days; Not reported; Not reported; Not reported; Not reported
Results Details	Slower degradation under aerobic conditions (compared to previous studies) was possibly due to low dissolved oxygen (~2.0 mg/L in the slurry phase), which was not optimal for the growth of aerobic microbes.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were used.
Metric 4:	Test Substance Stability	Medium	The test substance preparation and homogeneity was reported.

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Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test.
	Metric 6:	Testing Conditions	Medium	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were reported and appropriate.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was described and was appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and no confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations were reported and sufficient evidence was provided to show that disappearance was not due to other processes.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: None indicated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, USA); NR; 99.5%
Oxygen, pH, and CEC	anaerobic; pH 6.85; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1 C; Prepared with deaerated deionized water and covered with a rubbers stopper, and incubated in the dark up to 42 days
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; Total organic carbon 9.3 g/kg, total nitrogen 1.1 g/kg, NH4+-N 6.38 mg/kg and NO3-N 2.72 mg/kg.; Not reported
Soil Classification, Microbial Biomass, and Humidity	Agricultural soil (loamy clay) from suburban area of Nanjing, Jiangsu Province in China.; Bacterial analysis using genomic sequencing reported in supplemental information: Not reported
Duration, Parameter, System, and Sampling Frequency	42 days; test mat.; Microcosm experiment using homogeneously mixed soil (treated with acetone). 20 g (dw) soil, flushed with N2 in anaerobic glove box for 60 min. 30 mL of deionized water was added to glass bottles and sealed with air-tight butyronitrile rubber stoppers.; 0, 21 and 42 days
Control and Blank	Not reported; Uncontaminated soil treated with the same amount of acetone solvent as the test experiments
Concentration	1000 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Soil samples were extracted via sonication with acetone and hexane (1:1, v/v) and then analyzed with GC-FID.; Agilent 7890A gas chromatography flame- ionization detector (GC-FID, Agilent, USA) with a HP-5. Capillary column (30mx 0.32mmx 0.25 um, J&W Scientific Inc., Folsom, USA).; % degradation of DEHP
Results Remarks	High amounts of 2-ethylhexanol was detected indicating there was a lack of efficient degraders.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	<40% degraded after 42 days; Not reported; Not reported; Not reported; Not reported
Results Details	The presence of oxygen seemed to slow DEHP degradation in flooded soils, but this was not statistically significant.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation and homogeneity was reported.
Domain 3: Test Conditions				

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Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test.
	Metric 6:	Testing Conditions	Medium	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were reported and appropriate.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was described and was appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and no confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations were reported and sufficient evidence was provided to show that disappearance was not due to other processes.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: None indicated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, USA); NR; 99.5%
Oxygen, pH, and CEC	anaerobic; pH 6.85; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1 C; Prepared with deaerated deionized water and covered with a rubbers stopper, and incubated in the dark up to 42 days
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; Total organic carbon 9.3 g/kg, total nitrogen 1.1 g/kg, NH4+-N 6.38 mg/kg and NO3-N 2.72 mg/kg.; Not reported
Soil Classification, Microbial Biomass, and Humidity	Agricultural soil (loamy clay) from suburban area of Nanjing, Jiangsu Province in China.; Bacterial analysis using genomic sequencing reported in supplemental information: Not reported
Duration, Parameter, System, and Sampling Frequency	42 days; test mat.; Microcosm experiment using homogeneously mixed soil (treated with acetone). 20 g (dw) soil, flushed with N2 in anaerobic glove box for 60 min. 30 mL of deionized water was added to glass bottles and sealed with air-tight butyronitrile rubber stoppers.; 0, 21 and 42 days
Control and Blank	Not reported; Uncontaminated soil treated with the same amount of acetone solvent as the test experiments
Concentration	100 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Soil samples were extracted via sonication with acetone and hexane (1:1, v/v) and then analyzed with GC-FID.; Agilent 7890A gas chromatography flame- ionization detector (GC-FID, Agilent, USA) with a HP-5. Capillary column (30mx 0.32mmx 0.25 um, J&W Scientific Inc., Folsom, USA).; % degradation of DEHP
Results Remarks	High amounts of 2-ethylhexanol was detected indicating there was a lack of efficient degraders
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	<40% degraded after 42 days; Not reported; Not reported; Not reported; Not reported
Results Details	The presence of oxygen seemed to slow DEHP degradation in flooded soils, but this was not statistically significant.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation and homogeneity was reported.
Domain 3: Test Conditions				

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Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test.
	Metric 6:	Testing Conditions	Medium	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were reported and appropriate.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was described and was appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and no confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations were reported and sufficient evidence was provided to show that disappearance was not due to other processes.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: None indicated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, USA); NR; 99.5%
Oxygen, pH, and CEC	aerobic; pH 6.85; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 25±1 C; Prepared with non-deaerated deionized water and covered with a breathable film, and incubated in the dark up to 42 days
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; Total organic carbon 9.3 g/kg, total nitrogen 1.1 g/kg, NH4+-N 6.38 mg/kg and NO3-N 2.72 mg/kg.; Not reported
Soil Classification, Microbial Biomass, and Humidity	Agricultural soil (loamy clay) from suburban area of Nanjing, Jiangsu Province in China.; Bacterial analysis using genomic sequencing reported in supplemental information: Not reported
Duration, Parameter, System, and Sampling Frequency	42 days; test mat.; Microcosm experiment using homogeneously mixed soil (treated with acetone). 100 mL Serum bottles containing 20 g soil (dw) with 30 mL deionized water, covered with breathable film.; 0, 21 and 42 days
Control and Blank	Not reported; Uncontaminated soil treated with the same amount of acetone solvent as the test experiments
Concentration	1000 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Soil samples were extracted via sonication with acetone and hexane (1:1, v/v) and then analyzed with GC-FID.; Agilent 7890A gas chromatography flame- ionization detector (GC-FID, Agilent, USA) with a HP-5. Capillary column (30mx 0.32mmx 0.25 um, J&W Scientific Inc., Folsom, USA).; % degradation of DEHP
Results Remarks	High amounts of 2-ethylhexanol was detected indicating there was a lack of efficient degraders
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	<40% degraded after 42 days; Not reported; Not reported; Not reported; Not reported
Results Details	Slower degradation under aerobic conditions (compared to previous studies) was possibly due to low dissolved oxygen (~2.0 mg/L in the slurry phase), which was not optimal for the growth of aerobic microbes.
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation and homogeneity was reported.
Domain 3: Test Conditions				

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Study Citation:	Zhu, F., Zhu, C., Zhou, D., Gao, J. (2019). Fate of di (2-ethylhexyl) phthalate and its impact on soil bacterial community under aerobic and anaerobic conditions. Chemosphere 216:84-93.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5493208

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test.
	Metric 6:	Testing Conditions	Medium	The test conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were reported and appropriate.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was described and was appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and no confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical and transformation product concentrations were reported and sufficient evidence was provided to show that disappearance was not due to other processes.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Adeogun, A. O., Ibor, O. R., Omiwole, R. A., Hassan, T., Adegbola, R. A., Adewuyi, G. O., Arukwe, A. (2015). Occurrence, species, and organ differences in bioaccumulation patterns of phthalate esters in municipal domestic water supply lakes in Ibadan, Nigeria. Journal of Toxicology and Environmental Health, Part A: Current Issues 78(12):761-777.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2940328

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Levels of phthalic acid esters in environmental (water and sediment) and biota samples of two lakes Asejire and Eleyele in Nigeria
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Switzerland); NR; 99% Notes: DEHP
Test Organism and Test Organism Details	Tilapia zillii, Hepsetus odoe, Parachanna obscura and Chrysichthys nigrodigitatus, Mormyrus rume, and a decapod crustacean (African river prawn, Macrobrachium vollenhovenii); Natural biota samples
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; NR; temperature was measured at the sampling site using a mercury-in-glass thermometer.; NR; measured using a Consort C933T electrochemistry meter; Not reported
Media Type, TOC, and Salinity	natural water: marine; NR; measured using a Consort C933T electrochemistry meter; NR; measured using a Consort C933T electrochemistry meter
Dissolved Oxygen, Conductivity, and Hardness	NR; measured using a Consort C933T electrochemistry meter; NR; measured using a Consort C933T electrochemistry meter; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environmental; Natural; Measured
Test Type, Test Temperature, and Test Condition Comments	field study; NR; temperature was measured at the sampling site using a mercury-in-glass thermometer.; Water and sediment samples were collected from lakes Asejire and Eleyele in Nigeria
Duration, Parameter, and Sampling Frequency	Sampling conducted May 2011 to July 2011; other; Sample preparation according to the U.S. Environmental Protection Agency (U.S. EPA, 2012)
Concentration	Not Reported
Analytical Method and Analytical Details	HPLC; Detailed protocols, including quality assurance, are given in Supplementary Material 1;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Single factor analysis of variance (ANOVA) was used to compare phthalate concentration in water, sediment and biota.; Not Reported; steady state
Results Value and Results Details	Bioconcentration factor BCF; Biota-Sediment Accumulation Factor BSAF; BCF (Fish From Asejire Lake): Muscle=0.45 (C. nigrodigitatus) 0.66 (M. rume) 0.60 (T. zilli), Gill=0.57 (C. nigrodigitatus) 1.25 (M. rume) 6.66 (T. zilli), Liver=3.47 (C. nigrodigitatus) 1.05 (M. rume) 15.18 (T. zilli), Kidney=0.09 (C. nigrodigitatus) 9.25 (M. rume) 1.22 (T. zilli), BSAF (Fish From Asejire Lake): Muscle=0.02 (C. nigrodigitatus) 0.03 (M. rume) 0.03 (T. zilli), Gill=0.03 (C. nigrodigitatus) 0.07 (M. rume) 0.38 (T. zilli), Liver=0.20 (C. nigrodigitatus) 0.06 (M. rume) 0.88 (T. zilli), Kidney=0.05 (C. nigrodigitatus) 0.53 (M. rume) 0.07 (T. zilli); BCF (Fish From Eleyele Lake): Muscle=0.05 (H. odoe) 0.60 (P. obscura) 0.48 (T. zilli), Gill=0.32 (H. odoe) 0.07 (P. obscura) 0.10 (T. zilli), Liver=0.48 (H. odoe) 0.20 (P. obscura) 0.24 (T. zilli), Kidney=0.89 (H. odoe) 0.50 (P. obscura) 1.62 (T. zilli); BSAF (Fish From Eleyele Lake): Muscle=0.02 (H. odoe) 0.22 (P. obscura) 0.18 (T. zilli), Gill=0.12 (H. odoe) 0.02 (P. obscura) 0.04 (T. zilli), Liver=0.18 (H. odoe) 0.07 (P. obscura) 0.09 (T. zilli), Kidney=0.34 (H. odoe) 0.19 (P. obscura) 0.62 (T. zilli)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.

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Study Citation:	Adeogun, A. O., Ibor, O. R., Omiwole, R. A., Hassan, T., Adegbola, R. A., Adewuyi, G. O., Arukwe, A. (2015). Occurrence, species, and organ differences in bioaccumulation patterns of phthalate esters in municipal domestic water supply lakes in Ibadan, Nigeria. Journal of Toxicology and Environmental Health, Part A: Current Issues 78(12):761-777.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2940328

EVALUATION

Domain	Metric		Rating	Comments
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Controls not required for field studies.
	Metric 4:	Test Substance Stability	Medium	Field sample storage details were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions of the samples collected were reported; however measurement was conducted and may be in SI. Fish sample characteristics were limited (age, lipid content).
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to field studies.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	Medium	Test organism species and source were reported, limited organism characteristics reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail on sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were omitted; however, this does not hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.

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Study Citation:	Adeogun, A. O., Ibor, O. R., Omiwole, R. A., Hassan, T., Adegbola, R. A., Adewuyi, G. O., Arukwe, A. (2015). Occurrence, species, and organ differences in bioaccumulation patterns of phthalate esters in municipal domestic water supply lakes in Ibadan, Nigeria. Journal of Toxicology and Environmental Health, Part A: Current Issues 78(12):761-777.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2940328

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Adeogun, A. O., Ibor, O. R., Omogbemi, E. D., Chukwuka, A. V., Adegbola, R. A., Adewuyi, G. A., Arukwe, A. (2015). Environmental occurrence and biota concentration of phthalate esters in Epe and Lagos Lagoons, Nigeria. Marine Environmental Research 108:24-32.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2915546

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexylphthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Levels of phthalic acid esters in environmental (water and sediment) and biota samples of the two lagoon systems (Epe and Lagos) in Nigeria
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Switzerland); NR; Analytical standard Notes: Monitoring study
Test Organism and Test Organism Details	Macrobrachium vollenhovenii; Chrysicthys nigrodigitatus, Tilapia guineensis; Natural biota samples; whole body BSAF values reported for Macrobrachium vollenhovenii; organ BSAF reported for Chrysicthys nigrodigitatus, Tilapia guineensis
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 7.21±0.26 (Epe) 7.4±0.18 (Lagos); Not reported
Media Type, TOC, and Salinity	natural water: marine; Total dissolved solids: 226.14±57.1 mg/L (Epe) 336.50±18.6 mg/L (Lagos); 0.27±0.12 mg/L (Epe) 4.02±0.34 mg/L (Lagos)
Dissolved Oxygen, Conductivity, and Hardness	2.51±0.72 mg/L (Epe and Lagos); 200.50±66.03 uS/cm (Epe) 618.20±27.40 uS/cm (Lagos); Not reported
Exposure Route, Elimination, and Nominal Measurements	Environmental; Natural; Measured
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water and sediment samples were collected from four stations, including two landing sites of Lagos and Epe lagoons
Duration, Parameter, and Sampling Frequency	Sampling conducted May 2011 to July 2011; DT50; Not reported
Concentration	0.28 ± 0.02 (Epe sediment), 0.16 ± 0.03 (Lagos sediment) - ug/g
Analytical Method and Analytical Details	HPLC; Not reported;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Single factor analysis of variance (ANOVA) was used to compare phthalate concentration in water, sediment and biota.; Not Reported; steady state
Results Value and Results Details	Macrobrachium vollenhovenii Whole body BSAF=0.86 (Lagos) and 0.1 (Epe); T. guineensis BSAF in muscle=0.25, gill=0.12, liver=0.27, and kidney=0.50 (Lagos); T. guineensis BSAF in muscle=0.27, gill=0.34, liver=0.11, and kidney=0.12 (Epe); C. nigrodigitatus BSAF in muscle=0.22, gill=0.15, liver=0.39, and kidney=2.30 (Lagos); C. nigrodigitatus BSAF in muscle=0.70, gill=0.44, liver=0.11, and kidney=0.22 (Epe)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	Analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Controls not required for field studies.
	Metric 4:	Test Substance Stability	Medium	Field sample storage details were not reported.

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Study Citation:	Adeogun, A. O., Ibor, O. R., Omogbemi, E. D., Chukwuka, A. V., Adegbola, R. A., Adewuyi, G. A., Arukwe, A. (2015). Environmental occurrence and biota concentration of phthalate esters in Epe and Lagos Lagoons, Nigeria. Marine Environmental Research 108:24-32.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2915546

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions of the samples collected were reported. Fish sample characteristics were limited (age, lipid content).
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to field studies.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	Test organism species and source were reported, limited organism characteristics reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail on sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were omitted; however, this does not hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Adeogun, A. O., Ibor, O. R., Omogbemi, E. D., Chukwuka, A. V., Adegbola, R. A., Adewuyi, G. A., Arukwe, A. (2015). Environmental occurrence and biota concentration of phthalate esters in Epe and Lagos Lagoons, Nigeria. Marine Environmental Research 108:24-32.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2915546

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexylphthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Levels of phthalic acid esters in environmental (water and sediment) and biota samples of the two lagoon systems (Epe and Lagos) in Nigeria
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Switzerland); NR; Analytical standard Notes: Monitoring study
Test Organism and Test Organism Details	Macrobrachium vollenhovenii; Chrysicthys nigrodigitatus, Tilapia guineensis; Natural biota samples; whole body BCF values reported for Macrobrachium vollenhovenii; organ BCF reported for Chrysicthys nigrodigitatus, Tilapia guineensis
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 7.21±0.26 (Epe) 7.4±0.18 (Lagos); Not reported
Media Type, TOC, and Salinity	natural water: marine; Total dissolved solids: 226.14±57.1 mg/L (Epe) 336.50±18.6 mg/L (Lagos); 0.27±0.12 mg/L (Epe) 4.02±0.34 mg/L (Lagos)
Dissolved Oxygen, Conductivity, and Hardness	2.51±0.72 mg/L (Epe and Lagos); 200.50±66.03 uS/cm (Epe) 618.20±27.40 uS/cm (Lagos); Not reported
Exposure Route, Elimination, and Nominal Measurements	Environmental; Natural; Measured
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water and sediment samples were collected from four stations, including two landing sites of Lagos and Epe lagoons
Duration, Parameter, and Sampling Frequency	Sampling conducted May 2011 to July 2011; DT50; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	HPLC; Not reported;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Single factor analysis of variance (ANOVA) was used to compare phthalate concentration in water, sediment and biota.; Not Reported; steady state
Results Value and Results Details	Macrobrachium vollenhovenii Whole body BCF=1.61 (Lagos) and 0.14 (Epe); T. guineensis BCF in muscle=0.46, gill=0.21, liver=0.50, and kidney=0.94 (Lagos); T. guineensis BCF in muscle=0.41, gill=0.52, liver=0.17, and kidney=0.17 (Epe); C. nigrodigitatus BCF in muscle=0.41, gill=0.27, liver=0.73, and kidney=4.31 (Lagos); C. nigrodigitatus BCF in muscle=1.06, gill=0.66, liver=0.17, and kidney=0.32 (Epe)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	Analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Controls not required for field studies.
	Metric 4:	Test Substance Stability	Medium	Field sample storage details were not reported.
Domain 3: Test Conditions				

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Study Citation:	Adeogun, A. O., Ibor, O. R., Omogbemi, E. D., Chukwuka, A. V., Adegbola, R. A., Adewuyi, G. A., Arukwe, A. (2015). Environmental occurrence and biota concentration of phthalate esters in Epe and Lagos Lagoons, Nigeria. Marine Environmental Research 108:24-32.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2915546

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field study is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions of the samples collected were reported. Fish sample characteristics were limited (age, lipid content).
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to field studies.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	Test organism species and source were reported, limited organism characteristics reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail on sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were omitted; however, this does not hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (Lepomis macrochirus). :379-392.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	18050

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in Bluegill sunfish: Aquarium with well-water and modified continuous-flow proportional dilution apparatus for chemical introduction
Solvent, Reactivity, Storage, Stability	NR; NR; Stored in sealed vial under refrigerated conditions.; NR
Radiolabel, Source, State, Purity	Ring labelled C-14; New England Nuclear, Boston, Massachusetts.; NR; NR
Test Organism and Test Organism Details	Bluegill sunfish (Lepomis macrochirus); Sunfish were obtained from 1) a commercial fish farm in Connecticut. Wet weights: 0.37±0.18 to 0.94±0.34 mm. Lengths: 25±3 to 32±4 mm. 2) commercial farm in Nebraska: Weight: 0.95±0.36 g; Length: 35±4 mm.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 16±1°C (mean); Measured daily; 7.1; 7 days
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Initial=>60% of saturation (5.6 mg/L) (measured periodically range 5.9-8.6 mg/L 57-89% sat); Not reported; 35 mg/L as calcium carbonate
Exposure Route, Elimination, and Nominal Measurements	500mL of diluent well water was mixed with stock solution.; t1/2 3 days; following the apparent equilibrium or 28 d exposure period fish were transferred to pollutant free aquarium; sample days 1, 2, 4, 7; Measured
Test Type, Test Temperature, and Test Condition Comments	flow-through; 16±1°C (mean); Measured daily; Control aquarium which received only well water
Duration, Parameter, and Sampling Frequency	42 days; Test: 28 days or until equilibrium; water and fish samples collected periodically until apparent equilibrium was reached or the max exposure of 28 days was reached; DT50; Days 0, 1, 2, 4, 7, 10, 14, 21, 28.
Concentration	5.82±.90 µg/L
Analytical Method and Analytical Details	Quantitation of radiolabeled residue using a Packard Model 306 Oxidizer and Model 2002 Packard Tri-Carb Liquid Scintillation Spectrometer; samples collected and prepared according to US EPA.;
Rate Constant and Results per Recovery	Half-life 3 days; Half-life defined as the period of time required for the mean chemical residue measured in fish at equilibrium to be reduced by half during depuration; Oxidizer: 99-100% recovery; Counting efficiencies: 7.9% counting error at 95% confidence level, decreased as sample activity increased
Statistics, Basis, and Calculation Basis	Not Reported; whole fish; steady state
Results Value and Results Details	BCF=114; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; NA (control aquarium used but not discussed other than its use as a baseline)

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The purity of the test substance was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Control aquaria were used without the introduction of the test substance.

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Study Citation:	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (Lepomis macrochirus). :379-392.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	18050

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance storage and preparation were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The samples were kept in the same aquarium and subject to the same treatment and conditions.
	Metric 8:	System Type and Design	High	Equilibrium was reported and the system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was described and appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and unlikely to impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No adverse health outcomes were reported among the test organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Lipid content and test substance recovery in fish tissue were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study results.

Overall Quality Determination — High

Study Citation:	Brown, D., Thompson, R. S. (1982). Phthalates and the aquatic environment: Part 1. The effect of di-2-ethylhexyl phthalate and diisodecyl phthalate on the reproduction of Daphnia magna and observations on their bioconcentration. Chemosphere 11(4):417-426.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334281

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14-C DEHP synthesized from 14-C phthalic anhydride.; NR; NR; 98% (chemical and radiochemical purity)
Test Organism and Test Organism Details	Daphnia Magna; Daphnia were fed daily by addition of algae (Chlorella vulgaris) and yeast suspensions
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported
Media Type, TOC, and Salinity	Not Reported; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	8.4-8.8 mgO2/L measured at end of test; Not reported; 195 mg/L as CaCo3
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Nominal concentrations tested: 3.2, 10, 32 and 100µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 20±1°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Not reported
Concentration	3.2 - 100 µg/L
Analytical Method and Analytical Details	Liquid scintillation counting; Not Reported;
Rate Constant and Results per Recovery	Not reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	BCF at 3.2, 10, 32 and 100µg/L, respectively: 166, 140, 261, and 268; Not reported
Metabolites, Reference, and Results Reference Substance	Scintillation counting also detected radiochemical metabolites that were likely present at a 2:1 Parent compound:metabolite concentration ratio.; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	Medium	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls without the test organisms were used to determine the stability of the test substance in water.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, and preparation were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Brown, D., Thompson, R. S. (1982). Phthalates and the aquatic environment: Part 1. The effect of di-2-ethylhexyl phthalate and diisodecyl phthalate on the reproduction of Daphnia magna and observations on their bioconcentration. Chemosphere 11(4):417-426.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334281

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance, although the concentration was near the solubility in some trials.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The system design was appropriate and equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was described and appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty in the measurements were not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No organism attrition was observed in any of the study groups.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details regarding the analytical method were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not clearly reported but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are similar to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Brown, D., Thompson, R. S. (1982). Phthalates and the aquatic environment: Part 2. The bioconcentration and depuration of di-2-ethylhexyl phthalate and diisodecyl phthalate in mussels, (Mytilus edulis). Chemosphere 11(4):427-435.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334379

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14-C labelled DEHP (4.76 mCi/g) synthesized from 14-C phthalic anhydride; Not Reported; NR; >97.5%
Test Organism and Test Organism Details	Mussels (Mytilus edulis); Mean wet weight=472, mean shell length=22.6 mm. Fed with unicellular alga (platymonas suecica)
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; 15±1°C; Not Reported; 14 day depuration period
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Continuously fed saltwater tank with DEHP; Not Reported; Nominal: 5 and 50µg/L, measured: 3.9-4.3 and 39.9-44.6 µg/L, respectively.
Test Type, Test Temperature, and Test Condition Comments	flow-through; 15±1°C; Not Reported
Duration, Parameter, and Sampling Frequency	28 day exposure period; Not Reported; Day 1, 3, 7, 14, 21, 24, 28, 29, 31, 35, 42
Concentration	4.1 - 42.1 µg/L
Analytical Method and Analytical Details	Liquid scintillation counting following sample combustion; Not reported;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	BCF at 5.0 µg/L: 2366; BCF at 50 µg/L: 2627; BCF Mean: 2497; Depuration half life: 3.5 days.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A blank solvent control was used.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.

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Study Citation:	Brown, D., Thompson, R. S. (1982). Phthalates and the aquatic environment: Part 2. The bioconcentration and depuration of di-2-ethylhexyl phthalate and diisodecyl phthalate in mussels, (Mytilus edulis). Chemosphere 11(4):427-435.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334379

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The system design was appropriate and equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was described and was appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences in the outcome of interest and the outcome assessment methodology since DEHP metabolites were also detected by the analytical method.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Health outcomes were monitored and were consistent across study groups.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details regarding the analytical method were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis and kinetic calculations were not clearly reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Brown, D., Thompson, R. S., Stewart, K. M., Croudace, C. P., Gillings, E. (1996). The effect of phthalate ester plasticisers on the emergence of the midge (Chironomus riparius) from treated sediments. Chemosphere 32(11):2177-2187.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334624

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; DEHP
Confidentiality, Type, and Guideline	no; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	acetone; NR; NR; NR
Radiolabel, Source, State, Purity	non-radiolabelled samples and radio labeled samples (random 14C-label in the benzene ring, radiochemical purity of >93.3%); BP Chemicals, Hull UK (radio labelled chemical was supplied by ICI Physics and radioisotopes (now trading as Cambridge Research Biochemicals, Billingham, UK); NR; 99.5% (w/w) Notes: purchased under trade name "Bisoflex DOP", commercial product; the non-radio labelled sample was mixed with the radio labelled sample for use in the study in the following ratios: 3:1, 32:1, 327:1
Test Organism and Test Organism Details	Chironomus riparius larvae; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; 19-21 deg C; 7.8-8.3; NR
Media Type, TOC, and Salinity	natural river sediment; 8.6% w/w; NR
Dissolved Oxygen, Conductivity, and Hardness	6.7-9.1 mg/l; NR; NR
Exposure Route, Elimination, and Nominal Measurements	spiked sediment; results expressed as parent phthalate but the data represent total 14C-activity; it does not distinguish parent substance from metabolic products; nominal
Test Type, Test Temperature, and Test Condition Comments	static (sediment spiked at start of study); 19-21 deg C; 16 hours light and 8 hour dark with a 15 minute transition period
Duration, Parameter, and Sampling Frequency	28 days; BSAF; NR
Concentration	100 - 10000 mg phthalate/kg dry weight
Analytical Method and Analytical Details	Canberra-Packard 306D sample oxidiser and liquid scintillation counting (LSC); NR;
Rate Constant and Results per Recovery	NR; NR; no loss of activity (14C-count) was found during the course of the study
Statistics, Basis, and Calculation Basis	NR; Tissue concentration (mg/kg); dry weight
Results Value and Results Details	1.5; concentration in animal tissue dry weight (mg/kg)/concentration in sediment dry weight (mg/kg) = BSAFTreatment 1: 160/100 = 1.6Treatment 2: 1400/1000 = 1.4Treatment 2: 14000/10000 = 1.4Average = 1.46 = 1.5
Metabolites, Reference, and Results Reference Substance	NR; NR; NR; control and solvent control included

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and trade name.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Study controls were included.
	Metric 4:	Test Substance Stability	Medium	Some test substance stability, homogeneity, preparation or storage condition details were not reported.

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Study Citation:	Brown, D., Thompson, R. S., Stewart, K. M., Croudace, C. P., Gillings, E. (1996). The effect of phthalate ester plasticisers on the emergence of the midge (Chironomus riparius) from treated sediments. Chemosphere 32(11):2177-2187.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334624

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported.
	Metric 7:	Testing Consistency	Medium	There were minor inconsistencies in test conditions across samples or study groups; authors note an error in the test organism amount in some of the vessels.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	The test organism species and sex were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed; for example, concentrations of up to 140% of nominal were reported in sediment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analyses were not conducted; however, sufficient data were provided to conduct an analysis of the calculations.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Burkhard, L. P., Arnot, J. A., Embry, M. R., Farley, K. J., Hoke, R. A., Kitano, M., Leslie, H. A., Lotufo, G. R., Parkerton, T. F., Sappington, K. G., Tomy, G. T., Woodburn, K. B. (2012). Comparing laboratory and field measured bioaccumulation endpoints. Integrated Environmental Assessment and Management 8(1):17-31.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1443804

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	no; calculation; other: comparing lab and field measured bioaccumulation endpoints
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	not reported; not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not applicable; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	not applicable; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	not applicable; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	not applicable; not applicable; not applicable
Test Type, Test Temperature, and Test Condition Comments	not applicable; not applicable; Not Reported
Duration, Parameter, and Sampling Frequency	not reported; biotransformation half-life; 2393 measured data points from 171 reports for 15 nonionic organic chemicals
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	2.8 days; biotransformation half-life 2.8 days (median half-life estimate for a 10 g fish); approximate mean fugacity values for fish: BCF (bioconcentration factor) = 0.0008; BMF (biomagnification factor) = 0.03; BSAF (biota–sediment accumulation factor) = 0.9; BSSAF (biota–suspended solids accumulation factor) = 0.4; TMF = 0.4 (trophic magnification factor) (values taken from figure)
Metabolites, Reference, and Results Reference Substance	not applicable; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.

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Study Citation:	Burkhard, L. P., Arnot, J. A., Embry, M. R., Farley, K. J., Hoke, R. A., Kitano, M., Leslie, H. A., Lotufo, G. R., Parkerton, T. F., Sappington, K. G., Tomy, G. T., Woodburn, K. B. (2012). Comparing laboratory and field measured bioaccumulation endpoints. Integrated Environmental Assessment and Management 8(1):17-31.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1443804

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	More data is available in the supplemental material, but not presented here.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Chaler, R., Cantón, L., Vaquero, M., Grimalt, J. O. (2004). Identification and quantification of n-octyl esters of alkanoic and hexanedioic acids and phthalates as urban wastewater markers in biota and sediments from estuarine areas. Journal of Chromatography A 1046(1-2):203-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789463

EXTRACTION

Parameter	Data
CASRN and Test Material	NR; DEHP
Confidentiality, Type, and Guideline	None; experimental; other: monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sediment and fish monitoring study samples; NR; NR Notes: Sediment and biota samples kept at -20 deg C until analysis
Test Organism and Test Organism Details	Polychaeta, fish, oysters, crabs, muscles; organisms collected from Urdaibai estuary
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	natural water - freshwater; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	sediment; NR; NR
Test Type, Test Temperature, and Test Condition Comments	field study; NR; NR
Duration, Parameter, and Sampling Frequency	single samples collected; other; February, June and October 1994
Concentration	Not Reported
Analytical Method and Analytical Details	GC-FID; GC-MS used to confirm the compound identity;
Rate Constant and Results per Recovery	NR; not reported for each compound
Statistics, Basis, and Calculation Basis	NA; other; sediment and biota concentrations
Results Value and Results Details	BSAF roughly <3 based on figures (<10 ug/g in biota divided by 3 ug/g sediment); DEHP detected in sediment up to 3 ug/g, polychaetes (<10 ug/g), oysters (<6 ug/g), crabs (<5 ug/g), fish (<4 ug/g) from the Urdaibai estuary (based on figure)
Metabolites, Reference, and Results Reference Substance	NR; n-Octyl tetradecanoate, n-octyl docosanoate and phthalates; recoveries of 70-90% for standards

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Chaler, R., Cantón, L., Vaquero, M., Grimalt, J. O. (2004). Identification and quantification of n-octyl esters of alkanoic and hexanedioic acids and phthalates as urban wastewater markers in biota and sediments from estuarine areas. Journal of Chromatography A 1046(1-2):203-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789463

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The study reporting monitoring data.
Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions (e.g., temperature, pH was not reported); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported (i.e., sex, health status, age, or starting body weight), but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment; BSAF based on highest concentrations detected in biota and sediment from monitoring data.
Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not reported, preventing meaningful interpretation of study results. BSAF calculated based on values reported from figures.
Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance.

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Study Citation:	Chaler, R., Cantón, L., Vaquero, M., Grimalt, J. O. (2004). Identification and quantification of n-octyl esters of alkanoic and hexanedioic acids and phthalates as urban wastewater markers in biota and sediments from estuarine areas. Journal of Chromatography A 1046(1-2):203-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789463

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Medium

Study Citation:	Chi, J. (2009). Phthalate acid esters in Potamogeton crispus L. from Haihe River, China. Chemosphere 77(1):48-52.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	697462

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Diethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Field Study; other: Aquatic plant BCF field study at 4 sampling sites
Solvent, Reactivity, Storage, Stability	Plant samples extracted and analyzed in dichloromethane; NR; NR; NR
Radiolabel, Source, State, Purity	NA; 0-50 cm water samples, top 2 cm sediment samples, and whole plants were collected from 4 sites along the Haihe River, China; NR; NA Notes: Extraction efficiencies were performed with analytical standards of unreported origin and purity
Test Organism and Test Organism Details	Potamogeton crispus L.; Submerged herbaceous perennial plant
Lipid Content, Test Temperature, pH, and Depuration Time	March: 2.63, 3.80, 4.08, and 2.17%; April: 1.11, 1.35, 1.43, and 1.56%; May: 0.38, 0.51, 0.43, and 0.29%; March: 11, 12, 12, and 15°C; April: 18, 19, 20, and 22°C; May: 25, 26, 27, and 29°C; March: 7.9, 8.2, 8.1, and 8.2; April: 7.9, 8.0, 8.2, and 8.3; May: 7.8, 7.7, 7.8, and 7.9; Not reported
Media Type, TOC, and Salinity	natural water / sediment: freshwater; March: 3.05, 3.01, 1.94, and 2.04%; April: 2.78, 2.66, 1.74, and 2.58%; May: 2.75, 2.93, 1.83, and 2.29%; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment and water; Not reported; Measured
Test Type, Test Temperature, and Test Condition Comments	field study; March: 11, 12, 12, and 15°C; April: 18, 19, 20, and 22°C; May: 25, 26, 27, and 29°C; Samples collected at 4 sites
Duration, Parameter, and Sampling Frequency	2 mo (March - May 2008); other; 3 dates (March 29, April 29, May 25)
Concentration	3.54 - 101.1 µg/L
Analytical Method and Analytical Details	Gas chromatography-flame ionization detector; Water LOD: 0.1 ug/LSediment LOD: 0.02 mg/kgPlant LOD: 0.002 mg/kg;
Rate Constant and Results per Recovery	Not reported; Water: 84.2%Sediment: 84.7%Plant: 88.4%
Statistics, Basis, and Calculation Basis	SD water 3-15%; SD sediment 5-16%; SD plant 6-18%; organ w.w.; steady state
Results Value and Results Details	BCF (estimated from figure, based on water and above-ground tissues wet wt.); March: 29, 69, 65, and 98; April: 29, 10, 30 and 20; May: 50, 62, 19 and 32
Metabolites, Reference, and Results Reference Substance	Not reported; Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was detected in field studies, the source of which were well reported. Analytical standard source and purity were not reported but these omissions are unlikely to have substantial impact on study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent control groups.

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Study Citation:	Chi, J. (2009). Phthalate acid esters in Potamogeton crispus L. from Haihe River, China. Chemosphere 77(1):48-52.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	697462

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance extraction was reported for plant samples but not for water or sediment samples, storage conditions were not reported; these omissions are not likely to have substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Adequate sediment, water, and plant characteristics were reported.
	Metric 7:	Testing Consistency	High	Exposure conditions were reported and comparable across groups. The sampling and analytical methods were consistent across all groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species was reported and is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Reported variability was not likely to influence the outcome of the assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Plants were collected from field sites; no differences among study groups in organism attrition or health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency were reported, analytical methods were suitable for detection, plant lipid contents were reported, and detection limits were sensitive enough to detect the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Chi, J., Yang, Q. (2012). Effects of Potamogeton crispus L. on the fate of phthalic acid esters in an aquatic microcosm. Water Research 46(8):2570-2578.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1332769

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Plant concentration factors in submerged Potamogeton crispus L.
Solvent, Reactivity, Storage, Stability	Absolute ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma; NR; 99% Notes: DEHP
Test Organism and Test Organism Details	Potamogeton crispus L.; Submerged herbaceous perennial plant. Tissue was cultured from a parent material collected from Jingye Lake, China.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; 7.8-7.9; Not reported
Media Type, TOC, and Salinity	natural water / sediment: freshwater; 2.18% in background sediment sample, 2.69 and 2.94 in rhizosphere and non-rhizosphere soil, respectively, at the end of the experiment.; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	DEHP was added to inflow water at 0.3-0.5mg/L; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	flow-through; 20±1°C; In- and out-flow rates were 0.2L/h.
Duration, Parameter, and Sampling Frequency	20 days; other; Water samples were sampled at 0, 0.2, 0.5, 1, 1.5, 2, 3, 4, 6, 8, 10, 12.4, 14, 17, and 20 days. Plants and sediment were sampled at 0, 0.5, 1, 2, 4, 6, 8, 10, 12.4, 14, 17, and 20 days.
Concentration	0.3 - 0.5 mg/L
Analytical Method and Analytical Details	Gas chromatography-flame ionization detection.; Limit of detection in water: 0.1µg/L; LOD in sediment: 0.02mg/kg; LOD in plant: 0.002 mg/kg;
Rate Constant and Results per Recovery	Not reported; Average recovery in water, sediment, and plant: >86.2, >85.3, and >87.4%.
Statistics, Basis, and Calculation Basis	Relative standard deviation in water: 2-11%; in sediment: 5-14%; in plant: 3-13%; Not Reported; Not Reported
Results Value and Results Details	Plant concentration factor: 69-272 L/kg; PCF=DEHP plant conc./DEHP water conc.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Blank controls were included in this study.
Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the target chemical was tested at a concentration below its solubility.

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Study Citation:	Chi, J., Yang, Q. (2012). Effects of Potamogeton crispus L. on the fate of phthalic acid esters in an aquatic microcosm. Water Research 46(8):2570-2578.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1332769

EVALUATION

Domain	Metric		Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	The experiment was conducted in triplicate and no variations in the testing conditions were reported.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system type was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism information was reported and appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainties in the measurements were reported and experiments were done in triplicate with no indication that any significant variability occurred.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were no reported differences in the study groups that would impact the organism health.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The recoveries were reported and adequate and the plant concentration factors were clearly reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were consistent with field derived values according to the authors.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	De Peyster, A., Donohoe, R., Slymen, D. J., Froines, J. R., Olivieri, A. W., Eisenberg, D. M. (1993). Aquatic biomonitoring of reclaimed water for potable use: The San Diego health effects study. Journal of Toxicology and Environmental Health 39(1):121-141.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	657957

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: ASTM 1985 Standard Practice for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Mollusks
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Contaminated waters; NR; NR Notes: Detected in advanced wastewater treatment facility (AWT water) and a Water Treatment facility (Miramar water); standards used for analytical method not reported.
Test Organism and Test Organism Details	Pimephales promelas; Juvenile fathead minnows
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±1°C; 7.48 (AWT water); 8.25 (Miramar water); Not reported
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	≥ 60% (5.6 mg/L); 210 (AWT water); 813 (Miramar water); As CaCO3: 32 mg/L (AWT water); 245 mg/L (Miramar water)
Exposure Route, Elimination, and Nominal Measurements	Contaminated waters; target analyte concentration not reported; Not reported; Measured
Test Type, Test Temperature, and Test Condition Comments	flow-through; 22±1°C; Bioaccumulation of contaminants over a 28-d period using water from and advanced wastewater treatment facility (AWT water) and a Water Treatment facility (Miramar water)
Duration, Parameter, and Sampling Frequency	28 days; other; 0, 7, 14, and 28 days
Concentration	Not Reported
Analytical Method and Analytical Details	Method 625 base/neutral/acid extraction (B/N/A); Target analyte measured above the detection limit of 1 ug/L in fish samples exposed to water sources;
Rate Constant and Results per Recovery	Not reported; Specific concentrations in source waters not reported because extraneous sources of phthalates were not ruled out, test fish plastic shipping bags, trace amount in extraction solvent blanks
Statistics, Basis, and Calculation Basis	p <0.05; BMDP Statistical Software was used for data analysis; other; other
Results Value and Results Details	25% (AWT water); 25% (Miramar water); Percentage of samples above DL (1 ug/kg)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design			
	Metric 3: Study Controls	Uninformative	Controls included; however, no results were reported and concentrations of analytes in controls were not measured/reported. It was reported that analytical blanks contained trace amounts of phthalates and the possibility of phthalate contamination as a result of the plastic bags the test organisms were received in was not ruled out.

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Study Citation:	De Peyster, A., Donohoe, R., Slymen, D. J., Froines, J. R., Olivieri, A. W., Eisenberg, D. M. (1993). Aquatic biomonitoring of reclaimed water for potable use: The San Diego health effects study. Journal of Toxicology and Environmental Health 39(1):121-141.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	657957

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	A standard method was reported.
	Metric 6:	Testing Conditions	High	The testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	The test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	The system design details were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was a standard species; however, prior contamination from plastic shipping bags noted but was not quantified.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	There was incomplete reporting of outcome assessment method; BCF or BAF value was not reported. Concentration ranges detected in fish were reported and the water concentrations were not reported.
	Metric 12:	Test Substance Purity	High	The reported sampling details were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Uninformative	Prior contamination from plastic shipping bags noted but not assessed or quantified; trace contamination in analytical blanks.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Additional detail would proved support; however, the outcome, quantitative results for bioaccumulation, were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis reported and acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Quantitative results for bioaccumulation were not reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Dow Chemical, (1982). Bioconcentration kinetics of di-2-ethylhexyl phthalate in fathead minnows with cover letter.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335269

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Calculation; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14-C-DEHP; Dow Chemical Company; NR; NR
Test Organism and Test Organism Details	Fathead minnows; Pimephales promelas
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; 28 days
Media Type, TOC, and Salinity	Not reported; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 1.9, 2.5, and 4.6 µg/L
Test Type, Test Temperature, and Test Condition Comments	not specified; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	84 days; Not Reported; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	BCF: 842±108; Uptake doubling time of 13±1.3 minutes; clearance half-life of 7.6±0.73
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance homogeneity, preparation, and storage conditions were not reported; however, the omissions are unlikely to have substantial impact on the study results.

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Study Citation:	Dow Chemical, (1982). Bioconcentration kinetics of di-2-ethylhexyl phthalate in fathead minnows with cover letter.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335269

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Some of the details regarding the test method were not reported which may have an impact on the study results.
	Metric 6:	Testing Conditions	Low	Some of the testing conditions were not reported and their omission may have an impact on the study results.
	Metric 7:	Testing Consistency	High	No changes in the testing conditions were reported across the study groups.
	Metric 8:	System Type and Design	Medium	Equilibrium was not clearly reported but the omission is unlikely to have a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	Some details regarding the test organism were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Some of the details regarding the outcome assessment methodology were absent but the omissions are unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Some of the sampling details were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted and uncertainty was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Higher test concentrations were omitted due to impairment of gill function, but no adverse health effects were noted.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical methods were not reported which may have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis and kinetic calculations were not described clearly but the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information and the lack of a reference substance, reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	Low	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5353181

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, and Guideline	None; Not specified; other: Not reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	Not Reported; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	Not Reported; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not Reported; BAF: 41
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
Metric 2:	Test Substance Purity	Low	Details regarding the test substance purity were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details regarding the use of control groups were not reported in the secondary source.
Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method was not reported in the secondary source.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported in the secondary source.

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Study Citation:	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5353181

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Low	The testing consistency could not be evaluated due to limited information reported by the secondary source.
	Metric 8:	System Type and Design	Uninformative	The system type was not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Uninformative	No details were provided in the secondary source regarding the test organism.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The outcome assessment methodology was not reported in the secondary source.
	Metric 12:	Test Substance Purity	Low	Details regarding the sampling methods were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	Health outcomes were not described in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method and chemical concentrations were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Environmental Canada, Health Canada 2015a, 2015b, 2015c, 2015d. (HERO IDs: 7264200, 3688160, 3688004, 7264199)

Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3661424

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Di(2-ethylhexyl)phthalate
Confidentiality, Type, and Guideline	None; experimental; other: Not specified
Solvent, Reactivity, Storage, Stability	NR; 14C-labelled DEHP; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	fish; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; NR; Equilibrium 1 to >56 days
Duration, Parameter, and Sampling Frequency	NR; NR; NR
Concentration	NR - NR NR
Analytical Method and Analytical Details	total 14C-residues; NR;
Rate Constant and Results per Recovery	NR; NR
Statistics, Basis, and Calculation Basis	NR; NR; NR
Results Value and Results Details	BCF = 129-827 (based on DEHP+MEHP); multigeneration fathead minnow study BCF = 202 to 785 based on DEHP and 217 to 825 based on DEHP+MEHP
Metabolites, Reference, and Results Reference Substance	Mono(2-ethylhexyl)phthalate; NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was low or not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Control details were not reported.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.

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Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3661424

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method was not reported in detail.
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported in detail.
	Metric 7:	Testing Consistency	Low	Testing consistency details were not reported.
	Metric 8:	System Type and Design	Medium	Equilibrium was established. However, other system type and design details were not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Lipid normalized BCF and lipid content were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

* Related References: No primary reference cited.

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; OECD Guideline 305 C (Bioaccumulation: Test for the Degree of Bioconcentration in Fish) - [before 14 June 1996]: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Fish, Cyprinus carpio; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; Not Reported
Duration, Parameter, and Sampling Frequency	NR; BCF; NR
Concentration	NR -
Analytical Method and Analytical Details	NR; Not Reported;
Rate Constant and Results per Recovery	Not Reported; NR
Statistics, Basis, and Calculation Basis	Not Reported; NR; NR
Results Value and Results Details	1.3 - 29.7; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: CITI (1992). Biodegradation and Bioaccumulation Data of Existing Chemicals Based on the CSCL, Chemicals Inspection & Testing Institute (CITI), JapanHEROID: Expected to be equivalent to 10176833

Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14-residues by fish exposed to 14C-DEHP in LL-1132.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335376

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Accumulation of radiolabeled DEHP in fish exposed in water.
Solvent, Reactivity, Storage, Stability	Acetone; NR; Prepared superstock solution; NR
Radiolabel, Source, State, Purity	C-14 labeled, 1.0 milli-curies; Radiolabeled DEHP from American Radiochemical Corporation; Liquid C-14 labeled; 70% DEHP and 30% trichlorobenzene Notes: Liquid designated LL-1132. Source of unlabeled DEHP not reported.
Test Organism and Test Organism Details	bluegill sunfish (Lepomis macrochirus); Mean and standard deviation wet wt. 3.0 ±0.9 g and 58 ±10 mm length
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; 18 ±2°C exposure; 16 ±1°C depuration; 7.1; minimum 14-28 days
Media Type, TOC, and Salinity	natural water: freshwater; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	5.8 ppm; Not Reported; 35 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not Reported; <43% to 94%; Nominal
Test Type, Test Temperature, and Test Condition Comments	flow-through; 18 ±2°C exposure; 16 ±1°C depuration; Not Reported
Duration, Parameter, and Sampling Frequency	63-70 days; Not Reported; Day 1, 3, 7, 10, 14 and weekly thereafter
Concentration	3.5 - 350 µg/L
Analytical Method and Analytical Details	Liquid scintillation spectrometer; Muscle tissue and viscera were sampled, weighed, oxidized, and combusted. Activity measured by liquid scintillation spectrometer. Combustion of remaining tissues accounted for unextracted DEHP.;
Rate Constant and Results per Recovery	BCF; Recovery rates 99-101%. Experimental rates adjusted for percentage recovery.
Statistics, Basis, and Calculation Basis	p=0.05; Not Reported; Not Reported
Results Value and Results Details	BCF muscle and viscera; At 350 µg/L: BCF (muscle)=8X, BCF (viscera)=367X; At 3.5 µg/L: BCF (muscle)=145X, BCF (viscera)=1050X
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was sufficiently identified.
	Metric 2:	Test Substance Purity	Medium	Source and purity of radiolabeled DEHP was reported, but source and purity of unlabeled DEHP was not.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Control water was used, but results were not reported.
	Metric 4:	Test Substance Stability	High	Stability, storage, and preparation were well described.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable for the outcome of interest.

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Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14-residues by fish exposed to 14C-DEHP in LL-1132.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335376

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some test conditions were not reported, but this is unlikely to effect interpretation of the results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	The test system achieved equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organisms details and source were well described.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Outcome assessment was reported in a non-standard way (multiplication factor based on water solubility).
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and well described.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were accounted for in the data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No mortalities or outcome unrelated to exposure were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance and lipid normalized BCF were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and calculations were well described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within the expected range.
	Metric 18:	QSAR Models	N/A	Not applicable

Overall Quality Determination — High

Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14-residues by fish exposed to 14C-DEHP in LL-1132.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335376

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Accumulation of radiolabeled DEHP in fish exposed in water.
Solvent, Reactivity, Storage, Stability	Acetone; NR; Prepared superstock solution; NR
Radiolabel, Source, State, Purity	C-14 labeled, 1.0 milli-curies; Radiolabeled DEHP from American Radiochemical Corporation; Liquid C-14 labeled; 70% DEHP and 30% trichlorobenzene Notes: Liquid designated LL-1132. Source of unlabeled DEHP not reported.
Test Organism and Test Organism Details	Channel catfish (Ictalurus punctatus); Mean and standard deviation wet wt. 5.4 ±1.3 g and 81 ±19 mm length
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 18 ±2°C exposure; 16 ±1°C depuration; 7.1; 14-28 days
Media Type, TOC, and Salinity	natural water: freshwater; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	5.8 ppm; Not Reported; 35 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not Reported; 60% to 90%; Nominal
Test Type, Test Temperature, and Test Condition Comments	flow-through; 18 ±2°C exposure; 16 ±1°C depuration; Not Reported
Duration, Parameter, and Sampling Frequency	63-70 days; Not Reported; Day 1, 3, 7, 10, 14 and weekly thereafter
Concentration	3.5 - 350 µg/L
Analytical Method and Analytical Details	Liquid scintillation spectrometer; Muscle tissue and viscera were sampled, weighed, oxidized, and combusted. Activity measured by liquid scintillation spectrometer. Combustion of remaining tissues accounted for unextracted DEHP.;
Rate Constant and Results per Recovery	BCF; Recovery rates 99-101%. Experimental rates adjusted for percentage recovery.
Statistics, Basis, and Calculation Basis	p=0.05; Not Reported; Not Reported
Results Value and Results Details	BCF muscle and viscera; At 350 µg/L: BCF (muscle)=4X, BCF (viscera)=133X; At 3.5 µg/L: BCF (muscle)=42X, BCF (viscera)=600X
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test substance was sufficiently identified.
Metric 2:	Test Substance Purity	Medium	Source and purity of radiolabeled DEHP was reported, but source and purity of unlabeled DEHP was not.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Control water was used, but results were not reported.
Metric 4:	Test Substance Stability	High	Stability, storage, and preparation were well described.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	Test method was suitable for the outcome of interest.
Metric 6:	Testing Conditions	Medium	Some test conditions were not reported, but this is unlikely to effect interpretation of the results.

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Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14-residues by fish exposed to 14C-DEHP in LL-1132.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335376

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	The test system achieved equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organisms details and source were well described.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Outcome assessment was reported in a non-standard way (multiplication factor based on water solubility).
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and well described.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were accounted for in the data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No mortalities or outcome unrelated to exposure were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance and lipid normalized BCF were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and calculations were well described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within the expected range.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14C-residues by fish exposed to 14C-DEHP in ll-1131.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335378

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Accumulation of radiolabeled DEHP in fish
Solvent, Reactivity, Storage, Stability	10% tetradecene; NR; Flask, diluted with acetone; NR
Radiolabel, Source, State, Purity	C-14 ring-labeled (250 µCi); American Radiochemical Corporation (Oct. 15, 1976); Liquid; 90% Notes: Source of unlabeled DEHP was not reported.
Test Organism and Test Organism Details	Bluegill sunfish (Lepomis macrochirus); wet wt 2.8 ±0.8g and standard length 53 ±11 mm
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 18 ±1°C (exposure); 16 ±1°C (depuration); 7.1; 14 days
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	5.8 ppm; Not reported; 35 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Water; No half-life in muscle or viscera; Nominal
Test Type, Test Temperature, and Test Condition Comments	semi-static; 18 ±1°C (exposure); 16 ±1°C (depuration); Not Reported
Duration, Parameter, and Sampling Frequency	45 or 65 days; Not Reported; Day 1, 3, 7, 10, 14, and weekly thereafter
Concentration	9 - 900 µg/L
Analytical Method and Analytical Details	Liquid scintillation spectrometer; Muscle tissue and viscera were sampled, weighed, oxidized, and combusted. Activity measured by liquid scintillation spectrometer. Combustion of remaining tissues accounted for unextracted DEHP.;
Rate Constant and Results per Recovery	BCF; 99-101%
Statistics, Basis, and Calculation Basis	p=0.5; Not Reported; steady state
Results Value and Results Details	BCF (test concentration X factor); At 9 ug/L: 17X in muscle and 311X viscera; At 900 ug/L: 3X in muscle and 62X in viscera
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was sufficiently identified.
	Metric 2:	Test Substance Purity	Medium	Source and purity of the unlabeled DEHP was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A control group was reported but results were not reported.
	Metric 4:	Test Substance Stability	High	Storage conditions and preparation were well reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Test method was suitable for the measuring the outcome of interest.

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Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14C-residues by fish exposed to 14C-DEHP in ll-1131.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335378

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Not all test conditions were reported, but this is unlikely to impact the study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	Medium	Equilibrium was established but the study authors reported variability in test concentrations throughout the study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism details were well reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were well reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were accounted for in the evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Health outcomes of the animals were well reported. Some mortalities were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance and lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were well reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Study results were reported in a way that make it difficult to verify the results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14C-residues by fish exposed to 14C-DEHP in ll-1131.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335378

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Accumulation of radiolabeled DEHP in fish
Solvent, Reactivity, Storage, Stability	10% tetradecene; NR; Flask, diluted with acetone; NR
Radiolabel, Source, State, Purity	C-14 ring-labeled (250 µCi); American Radiochemical Corporation (Oct. 15, 1976); Liquid; 90% Notes: Source of unlabeled DEHP was not reported.
Test Organism and Test Organism Details	Channel catfish (Ictalurus punctatus); Mean weight 4.8 ±1.1 g; Standard length 74 ±16 mm
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 18 ±1°C (exposure); 16 ±1°C (depuration); 7.1; 14 days
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	5.8 ppm; Not reported; 35 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Water; No half-life in muscle or viscera; Nominal
Test Type, Test Temperature, and Test Condition Comments	semi-static; 18 ±1°C (exposure); 16 ±1°C (depuration); Not Reported
Duration, Parameter, and Sampling Frequency	45 or 65 days; Not Reported; Day 1, 3, 7, 10, 14, and weekly thereafter
Concentration	9 - 900 µg/L
Analytical Method and Analytical Details	Liquid scintillation spectrometer; Muscle tissue and viscera were sampled, weighed, oxidized, and combusted. Activity measured by liquid scintillation spectrometer. Combustion of remaining tissues accounted for unextracted DEHP.;
Rate Constant and Results per Recovery	BCF; 99-101%
Statistics, Basis, and Calculation Basis	p=0.5; Not Reported; steady state
Results Value and Results Details	BCF (test concentration X factor); At 9 ug/L: 22X in muscle and 278X viscera; At 900 ug/L: 3X in muscle and 21X in viscera
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test substance was sufficiently identified.
Metric 2:	Test Substance Purity	Medium	Source and purity of the unlabeled DEHP was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	A control group was reported but results were not reported.
Metric 4:	Test Substance Stability	High	Storage conditions and preparation were well reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	Test method was suitable for the measuring the outcome of interest.
Metric 6:	Testing Conditions	Medium	Not all test conditions were reported, but this is unlikely to impact the study results.
Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.

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Study Citation:	EG&G Bionomics, (1977). Accumulation and elimination of 14C-residues by fish exposed to 14C-DEHP in ll-1131.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335378

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was established but the study authors reported variability in test concentrations throughout the study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism details were well reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were well reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were accounted for in the evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Health outcomes of the animals were well reported. Some mortalities were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance and lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were well reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Study results were reported in a way that make it difficult to verify the results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	85251

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, and Guideline	none; Experimental; other: NR; described in previous publications
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Most 14C-labeled chemicals were purchased; others synthesized in testing lab; NR; ≥98%
Test Organism and Test Organism Details	Golden Ide (Leuciscus idus melanotus); representative of inhabitants of slightly polluted zones of running water
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; 3 days
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Measured
Test Type, Test Temperature, and Test Condition Comments	not specified; Not reported; Fish were not fed during the test
Duration, Parameter, and Sampling Frequency	Not reported; other; Not reported
Concentration	Not reported
Analytical Method and Analytical Details	Not reported; Bioconcentration measured by using avg constant exposition to the chemical dissolved in water;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	40; Bioaccumulation factor
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	Low	No information was provided about the test substance other than a statement indicating that some test substances were bought and some were synthesized in the lab.
Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not explicitly reported or verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	No information was provided regarding this metric.
Metric 4:	Test Substance Stability	N/A	No information was provided regarding this metric.
Domain 3: Test Conditions			

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Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	85251

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	No information was provided but may be available in referenced sources.
	Metric 6:	Testing Conditions	Uninformative	No information was provided regarding this metric.
	Metric 7:	Testing Consistency	N/A	No information was provided regarding this metric.
	Metric 8:	System Type and Design	N/A	No information was provided but may be available in referenced sources.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was obtained from a reliable or commercial source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	There was incomplete reporting of outcome assessment methods; however, such absence of details were not likely to be severe of have a substantial impact on study results.
	Metric 12:	Test Substance Purity	N/A	No information was provided but may be available in referenced sources.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical bioaccumulation factor was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Little to no statistical methods and kinetic calculation information was provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	Little to no information was provided; therefore, it was difficult to interpret the results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	85251

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: test conditions described previously
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; Most 14C-labeled chemicals were purchased; others synthesized in testing lab; NR; ≥98%
Test Organism and Test Organism Details	Chlorella fusca var. vacuolata; green algae; bottom of aquatic food chain; good storage capacity for lipophilic substances
Lipid Content, Test Temperature, pH, and Depuration Time	rather high in mature algae; Not reported; Not reported; 1 day
Media Type, TOC, and Salinity	natural water; Not applicable; Not applicable
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not applicable; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not applicable; Not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	not specified; Not reported; test conditions described previously
Duration, Parameter, and Sampling Frequency	1 day; other; 1 day
Concentration	0.05 mg/L
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Not reported; Not applicable
Statistics, Basis, and Calculation Basis	Not applicable; Not applicable; kinetic
Results Value and Results Details	5,400; Bioaccumulation factor; distribution of compound between water and organism reported
Metabolites, Reference, and Results Reference Substance	Not applicable; Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	Low	No information was provided about the test substance other than a statement indicating that some test substances were bought and some were synthesized in the lab.
	Metric 2: Test Substance Purity	Low	The source and purity of the test substance were not explicitly reported or verified by analytical means.
Domain 2: Test Design			
	Metric 3: Study Controls	Uninformative	No information was provided regarding this metric.
	Metric 4: Test Substance Stability	N/A	No information was provided regarding this metric.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	N/A	No information was provided but may be available in referenced sources.
	Metric 6: Testing Conditions	Uninformative	No information was provided regarding this metric.

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Study Citation:	Freitag, D., Ballhorn, L., Geyer, H., Korte, F. (1985). Environmental hazard profile of organic chemicals: An experimental method for the assessment of the behaviour of organic chemicals in the ecosphere by means of simple laboratory tests with 14C labelled chemicals. Chemosphere 14(10):1589-1616.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	85251

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	No information was provided regarding this metric.
	Metric 8:	System Type and Design	N/A	No information was provided but may be available in referenced sources.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	N/A	No information was provided but may be available in referenced sources.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	No information was provided.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Little to no statistical methods and kinetic calculation information was provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	Little to no information was provided; therefore, it was difficult to interpret the results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Hawker, D. W., Connell, D. W. (1986). Bioconcentration of lipophilic compounds by some aquatic organisms. Ecotoxicology and Environmental Safety 11(2):184-197.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333588

EXTRACTION

Parameter	Data
CASRN and Test Material	not reported; Not Reported
Confidentiality, Type, and Guideline	no; other; other: non-guideline
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Pulex (daphnids); not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Media Type, TOC, and Salinity	not reported; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	not reported; not reported; not reported
Test Type, Test Temperature, and Test Condition Comments	not reported; not reported; not reported
Duration, Parameter, and Sampling Frequency	not reported; not reported; not reported
Concentration	not reported not reported - not reported not reported not reported
Analytical Method and Analytical Details	not reported; not reported;
Rate Constant and Results per Recovery	not reported; not reported
Statistics, Basis, and Calculation Basis	not reported; not reported; steady state (BCF at equilibrium)
Results Value and Results Details	log BCF = 3.72; experimental data from cited reference in the study
Metabolites, Reference, and Results Reference Substance	not reported; not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Low	No details reported in this secondary source; additional detail may be in primary literature.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 4:	Test Substance Stability	Low	No details reported in this secondary source; additional detail may be in primary literature.

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Study Citation:	Hawker, D. W., Connell, D. W. (1986). Bioconcentration of lipophilic compounds by some aquatic organisms. Ecotoxicology and Environmental Safety 11(2):184-197.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333588

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 6:	Testing Conditions	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 7:	Testing Consistency	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 8:	System Type and Design	Low	No details reported in this secondary source; additional detail may be in primary literature.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study.
	Metric 10:	Sampling Methods	Low	Limited details reported in this secondary source; additional detail may be in primary literature.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 12:	Test Substance Purity	Low	No details reported in this secondary source; additional detail may be in primary literature.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	No details reported in this secondary source; additional detail may be in primary literature.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No details reported in this secondary source; additional detail may be in primary literature.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	No details reported in this secondary source; additional detail may be in primary literature.
	Metric 18:	QSAR Models	N/A	Not applicable to this study.

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Study Citation:	Hawker, D. W., Connell, D. W. (1986). Bioconcentration of lipophilic compounds by some aquatic organisms. Ecotoxicology and Environmental Safety 11(2):184-197.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333588

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**Low**	

* Related References: Source: KENAGA, G. E., AND GORING, C. A. I. (1980). Relationship between water solubility, soil sorption,octanol-water partitioning and concentration of chemicals in biota. Aquat. Toxicol. ASTM STP 707,78-115. HERO ID 7417; not available at time of extraction.

Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; 14C-DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	N,N-dimethylformamide (600 µg/mL); NR; NR; NR
Radiolabel, Source, State, Purity	Carbonyl labelled, Specific activity 75.94 dpm/ng; NR; NR; NR
Test Organism and Test Organism Details	Rainbow trout, Salmo gairdneri; 2.9±0.6 g, n=36, 4 per exposure time
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 12±0.5°C; 8.08; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	> 70% saturation; Not reported; 138 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal
Test Type, Test Temperature, and Test Condition Comments	static; 12±0.5°C; Kinetic model used, modeling transfer between water and gills, gills and other metabolic systems, and between other metabolic systems and tissue
Duration, Parameter, and Sampling Frequency	96 hours; Not Reported; 1, 2, 4, 8, 16, 32, 48, 64, 96 h
Concentration	20 ng/mL
Analytical Method and Analytical Details	Not reported; Fish and 20 mL water sampled for total radioactivity.;
Rate Constant and Results per Recovery	Uptake rate: 64.6 mL/h/g; Metabolic clearance rate: 530 mL/h/g (gills), 16.4 mL/h/g (systemic); Not reported
Statistics, Basis, and Calculation Basis	Significant increase in uptake rate and partition rate to metabolic systems and tissues was seen, increasing with decreasing organism weight; Whole body; kinetic
Results Value and Results Details	BCF= 51.5; Use of fry or minnows to predict bioconcentration may not accurately reflect accumulation in larger fish.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The system source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation (stock concentrations, solvent) were reported but not storage.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions of most importance were reported and appropriate.
	Metric 7:	Testing Consistency	High	Test conditions were reported as an average of measurements and conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	Medium	Steady-state was established, controls were not explicitly included to ensure the system could maintain test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism species, source, and weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate but sampling processing methods were reported elsewhere.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not explicitly reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported but may have been reported elsewhere. Recovery was not reported. Organism lipid content or lipid-normalized values were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic model was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however lipid content was not reported and therefore the results cannot be lipid normalized, and results were not compared to previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; 14C-DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	N,N-dimethylformamide (600 µg/mL); NR; NR; NR
Radiolabel, Source, State, Purity	Carbonyl labelled, Specific activity 75.94 dpm/ng; NR; NR; NR
Test Organism and Test Organism Details	Rainbow trout, Salmo gairdneri; 61±5.7 g, n=36, 4 per exposure time
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 12±0.5°C; 8.08; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	> 70% saturation; Not reported; 138 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal
Test Type, Test Temperature, and Test Condition Comments	static; 12±0.5°C; Kinetic model used, modeling transfer between water and gills, gills and other metabolic systems, and between other metabolic systems and tissue
Duration, Parameter, and Sampling Frequency	96 hours; Not Reported; 1, 2, 4, 8, 16, 32, 48, 64, 96 h
Concentration	20 ng/mL
Analytical Method and Analytical Details	Not reported; Fish and 20 mL water sampled for total radioactivity.;
Rate Constant and Results per Recovery	Uptake rate: 16.1 mL/h/g; Metabolic clearance rate: 502 mL/h/g (gills), 17.7 mL/h/g (systemic); Not reported
Statistics, Basis, and Calculation Basis	Significant increase in uptake rate and partition rate to metabolic systems and tissues was seen, increasing with decreasing organism weight; Whole body; kinetic
Results Value and Results Details	BCF= 8.9; Use of fry or minnows to predict bioconcentration may not accurately reflect accumulation in larger fish.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The system source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation (stock concentrations, solvent) were reported but not storage.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions of most importance were reported and appropriate.

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Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were reported as an average of measurements and conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	Medium	Steady-state was established, controls were not explicitly included to ensure the system could maintain test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism species, source, and weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate but sampling processing methods were reported elsewhere.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not explicitly reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported but may have been reported elsewhere. Recovery was not reported. Organism lipid content or lipid-normalized values were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic model was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however lipid content was not reported and therefore the results cannot be lipid normalized, and results were not compared to previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; 14C-DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	N,N-dimethylformamide (600 µg/mL); NR; NR; NR
Radiolabel, Source, State, Purity	Carbonyl labelled, Specific activity 75.94 dpm/ng; NR; NR; NR
Test Organism and Test Organism Details	Rainbow trout, Salmo gairdneri; 441±58 g, n=36, 4 per exposure time
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 12±0.5°C; 8.08; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	> 70% saturation; Not reported; 138 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal
Test Type, Test Temperature, and Test Condition Comments	static; 12±0.5°C; Kinetic model used, modeling transfer between water and gills, gills and other metabolic systems, and between other metabolic systems and tissue
Duration, Parameter, and Sampling Frequency	48 hours; Not Reported; 0.5, 1, 2, 4, 8, 16, 32, and 48 h
Concentration	30 ng/mL
Analytical Method and Analytical Details	Reverse isotope dilution; Plasma and water samples analyzed.;
Rate Constant and Results per Recovery	Uptake rate: 3.7 mL/h/g; Metabolic clearance rate: 482 mL/h/g (gills), 10.9 mL/h/g (systemic); Not reported
Statistics, Basis, and Calculation Basis	Significant increase in uptake rate and partition rate to metabolic systems and tissues was seen, increasing with decreasing organism weight; Plasma; kinetic
Results Value and Results Details	BCF= 1.6; Use of fry or minnows to predict bioconcentration may not accurately reflect accumulation in larger fish.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The system source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation (stock concentrations, solvent) were reported but not storage.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions of most importance were reported and appropriate.

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Study Citation:	Hayton, W. L., Barron, M. G., Tarr, B. D. (1990). Effect of Body Size on the Uptake and Bioconcentration of Di-2-Ethylhexyl Phthalate in Rainbow Trout. Environmental Toxicology and Chemistry 9(8):989-996.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5611431

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were reported as an average of measurements and conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	Medium	Steady-state was established, controls were not explicitly included to ensure the system could maintain test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism species, source, and weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate but sampling processing methods were reported elsewhere.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not explicitly reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported but may have been reported elsewhere. Recovery was not reported. Organism lipid content or lipid-normalized values were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic model was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however lipid content was not reported and therefore the results cannot be lipid normalized, and results were not compared to previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: BAF based on dietary exposure and measured whole-body residue in shrimp
Solvent, Reactivity, Storage, Stability	Shrimp diet; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Penaeus vannamei; Obtained from University of Arizona experimental shrimp culture facility on Oahu, Hawaii
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	dietary; Not reported; 6, 600, 2400, 6000, 24000, 60000 ppm (nominal); 44, 519, 660, 5468, 18313, and 50227 ppm (analytical)
Test Type, Test Temperature, and Test Condition Comments	other; Not reported; Feeding rate: 4% body wt. per day in 2 equal feedings
Duration, Parameter, and Sampling Frequency	14 days; other; At the end of study
Concentration	44 ppm - 50227 ppm
Analytical Method and Analytical Details	Gas liquid chromatograph with 63Ni electron-capture detector; Whole body residues measured (n=2, except for 2 highest dose groups, n=3): 0.249, 1.083, 4.900, 5.106, 8.912±4.242, and 18.251±3.938 ppm per dose group respectively;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; whole body w.w.; other
Results Value and Results Details	BAF=0.00566, 0.00209, 0.00742, 0.000934, 0.000487, and 0.000363; Bioaccumulation factor calculated as whole body residue / analytical test substance concentration in diet
Metabolites, Reference, and Results Reference Substance	Not applicable; Control dietary exposure; Control received 2 ppm test substance (analytical), measured whole body residue was 0.209±0.069

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance identity and dose concentration were verified by analytical means and any observed effects were likely due to the test substance itself.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included (where applicable) and results from controls were within the ranges specified for test validity (or validity criteria for equivalent or similar tests, if not a guideline test).

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored but were not reported. However, it is assumed they were appropriate for the method and these omissions do not impact the test results based on low observed mortality in the test organisms.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results, equilibrium is not required in dietary studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism was obtained from a reliable source and the species is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed. No notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the datasets.
Domain 8: Other				

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; 14C DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Body burden based on dietary exposure and measured whole-body residue in shrimp
Solvent, Reactivity, Storage, Stability	Shrimp diet; NR; NR; NR
Radiolabel, Source, State, Purity	C-14 carbonyl label; synthesized from carbonyl labeled 1,2-dicarboxylic acid and 2-ethylhexanol; NR; purified by thin-layer chromatography
Test Organism and Test Organism Details	Penaeus vannamei; Obtained from University of Arizona experimental shrimp culture facility on Oahu, Hawaii
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	dietary; Not reported; 60, 600, and 6000 ppm (nominal)
Test Type, Test Temperature, and Test Condition Comments	other; Not reported; Feeding rate: 1% body wt. per day in 2 equal feedings
Duration, Parameter, and Sampling Frequency	24 hours; other; At the end of study
Concentration	60 ppm - 6000 ppm
Analytical Method and Analytical Details	Gas liquid chromatograph with 63Ni electron-capture detector; Whole body burden (n=5);
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; whole body w.w.; other
Results Value and Results Details	Body burden: 0.12±0.03, 1.19±0.26, and 6.43±1.99 ppm per dose respectively.; Not Reported
Metabolites, Reference, and Results Reference Substance	Not applicable; Control dietary exposure; Control received 600 ppm test substance

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance identity and dose concentration were verified by analytical means and any observed effects were likely due to the test substance itself.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included (where applicable)and results from controls were within the ranges specified for test validity (or validity criteria for equivalent or similar tests, if not a guideline test).
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored but were not reported. However, it is assumed they were appropriate for the method and these omissions do not impact the test results based on low observed mortality in the test organisms.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results. Equilibrium is not required in dietary studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism was obtained from a reliable source and the species is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed. No notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; 14C DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Body burden based on dietary exposure and measured whole-body residue in shrimp
Solvent, Reactivity, Storage, Stability	Shrimp diet; NR; NR; NR
Radiolabel, Source, State, Purity	C-14 carbonyl label; synthesized from carbonyl labeled 1,2-dicarboxylic acid and 2-ethylhexanol; NR; purified by thin-layer chromatography
Test Organism and Test Organism Details	Penaeus vannamei; Obtained from University of Arizona experimental shrimp culture facility on Oahu, Hawaii
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	dietary; Not reported; 60, 600, 6000 ppm (nominal)
Test Type, Test Temperature, and Test Condition Comments	other; Not reported; Feeding rate: 1% body wt. per day in 2 equal feedings
Duration, Parameter, and Sampling Frequency	96 hours; other; At the end of study
Concentration	44 ppm - 50227 ppm
Analytical Method and Analytical Details	Gas liquid chromatograph with 63Ni electron-capture detector; Whole body residues measured (n=5, except for medium dose where n=4);
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; whole body w.w.; other
Results Value and Results Details	Body burden: 0.17±0.03, 1.86±0.44, and 16.70±1.76 ppm per dose respectively.; Not Reported
Metabolites, Reference, and Results Reference Substance	Not applicable; Control dietary exposure; Control received 600 ppm test substance

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance identity and dose concentration were verified by analytical means and any observed effects were likely due to the test substance itself.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included (where applicable) and results from controls were within the ranges specified for test validity (or validity criteria for equivalent or similar tests, if not a guideline test).
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored but were not reported. However, it is assumed they were appropriate for the method and these omissions do not impact the test results based on low observed mortality in the test organisms.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results, equilibrium is not required in dietary studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism was obtained from a reliable source and the species is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed. No notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Hobson, J. F., Carter, D. E., Lightner, D. V. (1984). Toxicity of a phthalate ester in the diet of a penaied shrimp. Journal of Toxicology and Environmental Health 13(4-6):959-968.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	679685

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Huang, P. C., Tien, C. J., Sun, Y. M., Hsieh, C. Y., Lee, C. C. (2008). Occurrence of phthalates in sediment and biota: Relationship to aquatic factors and the biota-sediment accumulation factor. Chemosphere 73(4):539-544.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	675207

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: BSAF field study
Solvent, Reactivity, Storage, Stability	Hexane; NR; In amber vials at -20°C; NR
Radiolabel, Source, State, Purity	NR; Supelco, Bellefonate, PA; NR; >99.0%
Test Organism and Test Organism Details	Fish: Oreochromis miloticus niloticus, Liza subviridis, Acanthopagrus schlegeli, Zacco platypus and Acrossecheilus paradoxus; Two samples of each fish were caught or bought. 23 individual fish, 10 pooled fish samples (<15 cm) and 128 sediment samples were analyzed.
Lipid Content, Test Temperature, pH, and Depuration Time	Mean (g lipid/g of fish): 0.061 (0.025-0.140); SD=0.037.; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural sediment; Mean (g TOC/ g of sediment): 0.025 (0.008-0.056); SD=0.013.; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not reported; other; Sediment samples were collected in March-April and August-October.
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS-SIM used for identification and quantification.; US EPA SW-846 Method 8270 with some modifications.;
Rate Constant and Results per Recovery	BSAF (reported in figure): Mean=7; range=0.1-50.; Mean DEHP sediment recovery (RSD): 102.5% (11.5%); Mean DEHP fish recovery (RSD): 109.1% (9.0%)
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not reported; BSAF=(phthalate in fish/lipid content in fish) / (phthalate in sediment/organic carbon in sediment)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	Test substance standard was >99.0% pure.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Study controls were not required for this study.
Metric 4:	Test Substance Stability	High	Standards and sediment samples were stored in amber vials at -20 and 4°C, respectively.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test material.

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Study Citation:	Huang, P. C., Tien, C. J., Sun, Y. M., Hsieh, C. Y., Lee, C. C. (2008). Occurrence of phthalates in sediment and biota: Relationship to aquatic factors and the biota-sediment accumulation factor. Chemosphere 73(4):539-544.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	675207

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Water parameters such as dissolvable oxygen, temperature, and pH were not reported in the study but were tested; therefore, their omission is not likely to impact the study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported and suitable for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability were reported and no confounding variables between study groups were found.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Extraction recovery was reported and the analytical method was suitable for detecting the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Karara, A. H., Hayton, W. L. (1984). Pharmacokinetic model for the uptake and disposition of di-2-ethylhexyl phthalate in sheepshead minnow Cyprinodon variegatus. Aquatic Toxicology 5(3):181-195.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334048

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Calculation; other
Solvent, Reactivity, Storage, Stability	Dimethylformamide; NR; NR; NR
Radiolabel, Source, State, Purity	[14-C]carbonyl labeled (13.6 mCi/mM; 99% radiochemical purity); Unlabeled: RFR Corp., (Hope, RI); Labeled: Pathfinder Laboratories, Inc. (St. Louis, MO); NR; 98% Notes: NR
Test Organism and Test Organism Details	Sheepshead minnow (Cyprinodon variegatus); Fish were stored at 1 fish/2.5 L density and 20 C for 60 days before testing.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 23 C; Not reported; None
Media Type, TOC, and Salinity	other; Not reported; Total salinity was 1.0% NaCl equivalent
Dissolved Oxygen, Conductivity, and Hardness	Initial oxygen (% saturation): near 100%; final (at 96h): 20-30%; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	A 2L C-14-DEHP solution (60ng/mL) was connected between a temperature controlled bath and the fish tank. The solution was slowly pumped into the fish tank.; Not reported; (Approximated from graph) Initial (ng/mL): 59; final: 10
Test Type, Test Temperature, and Test Condition Comments	flow-through; 23 C; Not Reported
Duration, Parameter, and Sampling Frequency	30 days acclimation period; Not Reported; 9 samples taken (0, 2, 8, 16, 32, 48, 72, and 96h)
Concentration	ca. 10 - ca. 60 µg/L
Analytical Method and Analytical Details	Reverse isotope dilution technique; Not reported;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	BCF: 637; BCF=P (V1+V2)/(P+CLm) where P: absorption clearance constant; V1 + V2: intercompartmental transfer rate constants; CLm: metabolic clearance constant.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No study controls were reported; however, the omissions are unlikely to have had a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Karara, A. H., Hayton, W. L. (1984). Pharmacokinetic model for the uptake and disposition of di-2-ethylhexyl phthalate in sheepshead minnow Cyprinodon variegatus. Aquatic Toxicology 5(3):181-195.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334048

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported changes in the testing conditions between study groups.
	Metric 8:	System Type and Design	High	The system type was described and appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were clearly reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty in the measurements were not discussed; however, the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were no reported signs of organism attrition in any of the study groups.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Lipid normalized BCFs were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic calculations were clearly reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in sheepshead minnow.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]carbonyl labeled; Labeled Pathfinder Laboratories, Inc. (St. Louis, MO); unlabeled RFR Corp. (Hope, RI); NR; Labeled 99% radiochemical purity; unlabeled 99% purity Notes: Labeled specific activity=13.6 mCi/mM
Test Organism and Test Organism Details	Cyprinodon variegatus (sheepshead minnow); Netted in lots of 300 near Baytown, TX; groups of approximately 50 acclimated in constant temperature and maintained about 30 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10°C; Not reported; Not reported
Media Type, TOC, and Salinity	reagent grade water with 0.5% NaCl and 0.64% Instant Ocean; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	whole body; The metabolic clearance also increased as a function of temperature and appeared to have maximum value between 29 and 35°C.; Nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 10°C; Not Reported
Duration, Parameter, and Sampling Frequency	96 hours; BCF; 2-96 h
Concentration	60 ng/mL
Analytical Method and Analytical Details	Radioactivity by liquid scintillation counting; unlabeled DEHP by gas chromatography.; Details are referenced.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	A two-compartment pharmacokinetic model was developed to characterize the uptake and disposition of DEHP in sheepshead minnow.; whole fish; other
Results Value and Results Details	45; model-predicted depuration half-life: 13.7 days
Metabolites, Reference, and Results Reference Substance	Metabolites were measured in fish and water samples.; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
Metric 7:	Testing Consistency	High	Test conditions were consistent.
Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and are routinely used for similar study types and appropriate for the study method or route.
Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in sheepshead minnow.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]carbonyl labeled; Labeled Pathfinder Laboratories, Inc. (St. Louis, MO); unlabeled RFR Corp. (Hope, RI); NR; Labeled 99% radiochemical purity; unlabeled 99% purity Notes: Labeled specific activity=13.6 mCi/mM
Test Organism and Test Organism Details	Cyprinodon variegatus (sheepshead minnow); Netted in lots of 300 near Baytown, TX; groups of approximately 50 acclimated in constant temperature and maintained about 30 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 16°C; Not reported; Not reported
Media Type, TOC, and Salinity	reagent grade water with 0.5% NaCl and 0.64% Instant Ocean; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	whole body; The metabolic clearance also increased as a function of temperature and appeared to have maximum value between 29 and 35°C.; Nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 16°C; Not Reported
Duration, Parameter, and Sampling Frequency	96 hours; BCF; 2-96 h
Concentration	60 ng/mL
Analytical Method and Analytical Details	Radioactivity by liquid scintillation counting; unlabeled DEHP by gas chromatography.; Details are referenced.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	A two-compartment pharmacokinetic model was developed to characterize the uptake and disposition of DEHP in sheepshead minnow.; whole fish; other
Results Value and Results Details	131; model-predicted depuration half-life: 12.9 days
Metabolites, Reference, and Results Reference Substance	Metabolites were measured in fish and water samples.; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in sheepshead minnow.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]carbonyl labeled; Labeled Pathfinder Laboratories, Inc. (St. Louis, MO); unlabeled RFR Corp. (Hope, RI); NR; Labeled 99% radiochemical purity; unlabeled 99% purity Notes: Labeled specific activity=13.6 mCi/mM
Test Organism and Test Organism Details	Cyprinodon variegatus (sheepshead minnow); Netted in lots of 300 near Baytown, TX; groups of approximately 50 acclimated in constant temperature and maintained about 30 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 23°C; Not reported; Not reported
Media Type, TOC, and Salinity	reagent grade water with 0.5% NaCl and 0.64% Instant Ocean; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	whole body; The metabolic clearance also increased as a function of temperature and appeared to have maximum value between 29 and 35°C.; Nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 23°C; Not Reported
Duration, Parameter, and Sampling Frequency	96 hours; BCF; 2-96 h
Concentration	60 ng/mL
Analytical Method and Analytical Details	Radioactivity by liquid scintillation counting; unlabeled DEHP by gas chromatography.; Details are referenced.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	A two-compartment pharmacokinetic model was developed to characterize the uptake and disposition of DEHP in sheepshead minnow.; whole fish; other
Results Value and Results Details	637; model-predicted depuration half-life: 37.9 days
Metabolites, Reference, and Results Reference Substance	Metabolites were measured in fish and water samples.; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in sheepshead minnow.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]carbonyl labeled; Labeled Pathfinder Laboratories, Inc. (St. Louis, MO); unlabeled RFR Corp. (Hope, RI); NR; Labeled 99% radiochemical purity; unlabeled 99% purity Notes: Labeled specific activity=13.6 mCi/mM
Test Organism and Test Organism Details	Cyprinodon variegatus (sheepshead minnow); Netted in lots of 300 near Baytown, TX; groups of approximately 50 acclimated in constant temperature and maintained about 30 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 29°C; Not reported; Not reported
Media Type, TOC, and Salinity	reagent grade water with 0.5% NaCl and 0.64% Instant Ocean; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	whole body; The metabolic clearance also increased as a function of temperature and appeared to have maximum value between 29 and 35°C.; Nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 29°C; Not Reported
Duration, Parameter, and Sampling Frequency	96 hours; BCF; 2-96 h
Concentration	60 ng/mL
Analytical Method and Analytical Details	Radioactivity by liquid scintillation counting; unlabeled DEHP by gas chromatography.; Details are referenced.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	A two-compartment pharmacokinetic model was developed to characterize the uptake and disposition of DEHP in sheepshead minnow.; whole fish; other
Results Value and Results Details	962; model-predicted depuration half-life: 28.9 days
Metabolites, Reference, and Results Reference Substance	Metabolites were measured in fish and water samples.; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in sheepshead minnow.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]carbonyl labeled; Labeled Pathfinder Laboratories, Inc. (St. Louis, MO); unlabeled RFR Corp. (Hope, RI); NR; Labeled 99% radiochemical purity; unlabeled 99% purity Notes: Labeled specific activity=13.6 mCi/mM
Test Organism and Test Organism Details	Cyprinodon variegatus (sheepshead minnow); Netted in lots of 300 near Baytown, TX; groups of approximately 50 acclimated in constant temperature and maintained about 30 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 35°C; Not reported; Not reported
Media Type, TOC, and Salinity	reagent grade water with 0.5% NaCl and 0.64% Instant Ocean; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	whole body; The metabolic clearance also increased as a function of temperature and appeared to have maximum value between 29 and 35°C.; Nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 35°C; Not Reported
Duration, Parameter, and Sampling Frequency	96 hours; BCF; 2-96 h
Concentration	60 ng/mL
Analytical Method and Analytical Details	Radioactivity by liquid scintillation counting; unlabeled DEHP by gas chromatography.; Details are referenced.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	A two-compartment pharmacokinetic model was developed to characterize the uptake and disposition of DEHP in sheepshead minnow.; whole fish; other
Results Value and Results Details	6510; model-predicted depuration half-life: 53.5 days
Metabolites, Reference, and Results Reference Substance	Metabolites were measured in fish and water samples.; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Karara, A. H., Hayton, W. L. (1989). A pharmacokinetic analysis of the effect of temperature on the accumulation of di-2-ethylhexyl phthalate (DEHP) in sheepshead minnow. Aquatic Toxicology 15(1):27-36.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334457

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Kim, J., Gobas, F. A., Arnot, J. A., Powell, D. E., Seston, R. M., Woodburn, K. B. (2016). Evaluating the roles of biotransformation, spatial concentration differences, organism home range, and field sampling design on trophic magnification factors. Science of the Total Environment 551-552:438-451.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3350326

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate ester
Confidentiality, Type, and Guideline	no; calculation; other: Multibox-AQUAWEB model
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP
Test Organism and Test Organism Details	3 phytoplankton, 1 zooplankton, 10 invertebrates, 10 fish; invertebrates: Manila clams, blue mussel, Pacific oyster, cockle clams, geoduck clams, benthic invertebrates, shrimp, small crabs, purple seastar, Dungeness crab; fish: shiner perch pile perch, striped seaperch, surf smelt, Pacific herring, staghorn sculpin, starry flounder, English sole, white-spotted greenling, spiny dogfish
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; 15; not reported; not applicable
Media Type, TOC, and Salinity	natural water / sediment - marine; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	0.26 mg/L; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	environmental; not applicable; not applicable
Test Type, Test Temperature, and Test Condition Comments	field study data; 15; data were applied using 6 different scenarios
Duration, Parameter, and Sampling Frequency	not applicable; TMF; not applicable
Concentration	Not Reported
Analytical Method and Analytical Details	scenarios: S1 spatial concentration gradients in water and sediment were not present; S2 spatial concentration gradients were present in both water and sediment; S3 spatial concentration gradients were present in water but not in sediment; S4 spatial concentration gradients were present in sediment but not in water; S5 judgment sampling concentration gradient: (Area-1<Area-2<Area-3); S6 judgment sampling concentration gradient: (Area-1>Area-2>Area-3); fugacity ratio: S1-fixed; S2-fixed; S3-varied; S4-varied; S5-fixed; S6-fixed;
Rate Constant and Results per Recovery	Not Reported; not applicable
Statistics, Basis, and Calculation Basis	Not Reported; other; Not Reported
Results Value and Results Details	S1-0.12; S2-0.12; S3-0.12; S4-0.12; S5-0.92; S6-0.03; Data compared to the experimental TMF of 0.34. Concentrations in biota were (ng/g-lipid): S1: 1.57-9990; S2: 1.07-99.4; S3: 1.43-988; S4: 3.85-7940; S5: 0.569-99.9; S6: 1.57-9990.
Metabolites, Reference, and Results Reference Substance	not applicable; S1 was used as reference: sediment concentration 1 ug/kg dry weight; sed/water fugacity ratio of 1.; TMF = 0.32

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.

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Study Citation:	Kim, J., Gobas, F. A., Arnot, J. A., Powell, D. E., Seston, R. M., Woodburn, K. B. (2016). Evaluating the roles of biotransformation, spatial concentration differences, organism home range, and field sampling design on trophic magnification factors. Science of the Total Environment 551-552:438-451.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3350326

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples stored in amber glass bottles with formaldehyde; sediment samples stored in amber straight sided glass jars; organisms wrapped in aluminum foil; all samples except water stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Asan Lake, Korea; NA; NA
Test Organism and Test Organism Details	Bass; n=5
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water (BAF), sediment (BSAF); Not applicable; Measured: 0.11 ug/L (water), 2056 ug/kg dw (sediment) (water range: n.d. - 1.34 ug/L, n=47; sediment range: 3.6 - 8326 ug/kg dw, n= 47)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water, sediment, and fish samples collected from Asan Lake, a large artificial lake in Korea surrounded by industrial complex and farmlands
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; October 2016. January 2017 (water and sediment only), May and July 2017
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS in selected ion monitoring mode with an electron impact ionization, analytes separated on DB-5 MS UI capillary column; LOD 0.001 - 0.021 ug/L (water), 0.104 - 1.32 ug/kg dw (sediment), 0.17 - 0.53 ug/kg dw (fish); Water extracted by C18-E cartridge, eluted with methanol and hexane, evaporated to dryness, resuspended in acetone; Sediment and fish extracted by sonication with DCM, concentrated by roto-evap, cleaned up on Florisil-silica cartridge;
Rate Constant and Results per Recovery	Not applicable; 77 - 112% (water), 88-108% (sediment), 89-118% (fish) from matrix spiked samples
Statistics, Basis, and Calculation Basis	Spearman correlation and Kruskal-Wallis tests conducted with SPSS significance $p < 0.05$; principal component analysis with R v. 3.5.1;log BAF positive correlation with log Kow (r=0.606, $p < 0.01$), high bioavailability in water; Tissue, dry wt.; steady state
Results Value and Results Details	log BAF: 2.5; log BSAF: -2.9 kg/kg dw; Fish: 39.0 ug/kg dw
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks or reference organisms were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.

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Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions were provided; these omitted details are not expected to impact study results.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field sites are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species was reported, other details may be included in supplemental information.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed for BCF determination.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and were able to account for seasonal variance.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Standard deviation was not reported, seasonal variation in fish samples was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical method was appropriate and limits of detection and percent recovery of spiked samples was reported. Lipid content was not reported and BAF was not lipid normalized.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples stored in amber glass bottles with formaldehyde; sediment samples stored in amber straight sided glass jars; organisms wrapped in aluminum foil; all samples except water stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Asan Lake, Korea; NA; NA
Test Organism and Test Organism Details	Crucian carp; n=9
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water (BAF), sediment (BSAF); Not applicable; Measured: 0.11 ug/L (water), 2056 ug/kg dw (sediment) (water range: n.d. - 1.34 ug/L, n=47; sediment range: 3.6 - 8326 ug/kg dw, n= 47)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water, sediment, and fish samples collected from Asan Lake, a large artificial lake in Korea surrounded by industrial complex and farmlands
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; October 2016. January 2017 (water and sediment only), May and July 2017
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS in selected ion monitoring mode with an electron impact ionization, analytes separated on DB-5 MS UI capillary column; LOD 0.001 - 0.021 ug/L (water), 0.104 - 1.32 ug/kg dw (sediment), 0.17 - 0.53 ug/kg dw (fish); Water extracted by C18-E cartridge, eluted with methanol and hexane, evaporated to dryness, resuspended in acetone; Sediment and fish extracted by sonication with DCM, concentrated by roto-evap, cleaned up on Florisil-silica cartridge;
Rate Constant and Results per Recovery	Not applicable; 77 - 112% (water), 88-108% (sediment), 89-118% (fish) from matrix spiked samples
Statistics, Basis, and Calculation Basis	Spearman correlation and Kruskal-Wallis tests conducted with SPSS significance $p < 0.05$; principal component analysis with R v. 3.5.1;log BAF positive correlation with log Kow ($r=0.606$, $p < 0.01$), high bioavailability in water; Tissue, dry wt.; steady state
Results Value and Results Details	log BAF: 3.1; log BSAF: -2.8 kg/kg dw; Fish: 141 ug/kg dw
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks or reference organisms were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions were provided; these omitted details are not expected to impact study results.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field sites are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species was reported, other details may be included in supplemental information.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed for BCF determination.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and were able to account for seasonal variance.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Standard deviation was not reported, seasonal variation in fish samples was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical method was appropriate and limits of detection and percent recovery of spiked samples was reported. Lipid content was not reported and BAF was not lipid normalized.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples stored in amber glass bottles with formaldehyde; sediment samples stored in amber straight sided glass jars; organisms wrapped in aluminum foil; all samples except water stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Asan Lake, Korea; NA; NA
Test Organism and Test Organism Details	Skygager; n=7
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water (BAF), sediment (BSAF); Not applicable; Measured: 0.11 ug/L (water), 2056 ug/kg dw (sediment) (water range: n.d. - 1.34 ug/L, n=47; sediment range: 3.6 - 8326 ug/kg dw, n= 47)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water, sediment, and fish samples collected from Asan Lake, a large artificial lake in Korea surrounded by industrial complex and farmlands
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; October 2016. January 2017 (water and sediment only), May and July 2017
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS in selected ion monitoring mode with an electron impact ionization, analytes separated on DB-5 MS UI capillary column; LOD 0.001 - 0.021 ug/L (water), 0.104 - 1.32 ug/kg dw (sediment), 0.17 - 0.53 ug/kg dw (fish); Water extracted by C18-E cartridge, eluted with methanol and hexane, evaporated to dryness, resuspended in acetone; Sediment and fish extracted by sonication with DCM, concentrated by roto-evap, cleaned up on Florisil-silica cartridge;
Rate Constant and Results per Recovery	Not applicable; 77 - 112% (water), 88-108% (sediment), 89-118% (fish) from matrix spiked samples
Statistics, Basis, and Calculation Basis	Spearman correlation and Kruskal-Wallis tests conducted with SPSS significance $p < 0.05$; principal component analysis with R v. 3.5.1;log BAF positive correlation with log Kow ($r=0.606$, $p < 0.01$), high bioavailability in water; Tissue, dry wt.; steady state
Results Value and Results Details	log BAF: 3.1; log BSAF: -2.8 kg/kg dw; Fish: 140 ug/kg dw
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks or reference organisms were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions were provided; these omitted details are not expected to impact study results.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field sites are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species was reported, other details may be included in supplemental information.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed for BCF determination.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and were able to account for seasonal variance.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Standard deviation was not reported, seasonal variation in fish samples was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical method was appropriate and limits of detection and percent recovery of spiked samples was reported. Lipid content was not reported and BAF was not lipid normalized.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples stored in amber glass bottles with formaldehyde; sediment samples stored in amber straight sided glass jars; organisms wrapped in aluminum foil; all samples except water stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Asan Lake, Korea; NA; NA
Test Organism and Test Organism Details	Bluegill; n=9
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water (BAF), sediment (BSAF); Not applicable; Measured: 0.11 ug/L (water), 2056 ug/kg dw (sediment) (water range: n.d. - 1.34 ug/L, n=47; sediment range: 3.6 - 8326 ug/kg dw, n= 47)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Water, sediment, and fish samples collected from Asan Lake, a large artificial lake in Korea surrounded by industrial complex and farmlands
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; October 2016. January 2017 (water and sediment only), May and July 2017
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS in selected ion monitoring mode with an electron impact ionization, analytes separated on DB-5 MS UI capillary column; LOD 0.001 - 0.021 ug/L (water), 0.104 - 1.32 ug/kg dw (sediment), 0.17 - 0.53 ug/kg dw (fish); Water extracted by C18-E cartridge, eluted with methanol and hexane, evaporated to dryness, resuspended in acetone; Sediment and fish extracted by sonication with DCM, concentrated by roto-evap, cleaned up on Florisil-silica cartridge;
Rate Constant and Results per Recovery	Not applicable; 77 - 112% (water), 88-108% (sediment), 89-118% (fish) from matrix spiked samples
Statistics, Basis, and Calculation Basis	Spearman correlation and Kruskal-Wallis tests conducted with SPSS significance $p < 0.05$; principal component analysis with R v. 3.5.1;log BAF positive correlation with log Kow ($r=0.606$, $p < 0.01$), high bioavailability in water; Tissue, dry wt.; steady state
Results Value and Results Details	log BAF: 1.8; log BSAF: -3.1 kg/kg dw; Fish: 6.7 ug/kg dw
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks or reference organisms were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Lee, Y. M., Lee, J. E., Choe, W., Kim, T., Lee, J. Y., Kho, Y., Choi, K., Zoh, K. D. (2019). Distribution of phthalate esters in air, water, sediments, and fish in the Asan Lake of Korea. Environment International 126:635-643.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5043593

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions were provided; these omitted details are not expected to impact study results.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field sites are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species was reported, other details may be included in supplemental information.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed for BCF determination.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and were able to account for seasonal variance.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Standard deviation was not reported, seasonal variation in fish samples was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical method was appropriate and limits of detection and percent recovery of spiked samples was reported. Lipid content was not reported and BAF was not lipid normalized.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Mackintosh, C. E., Maldonado, J., Hongwu, J., Hoover, N., Chong, A., Ikonomou, M. G., Gobas, F. A. (2004). Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. Environmental Science & Technology 38(7):2011-2020.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789501

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	no; experimental; other: food-web magnification study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; 18 marine species; NR; NR
Test Organism and Test Organism Details	18 species: GA=green algae; BA=brown algae; PK=plankton; BM=blue mussels; PO=Pacific oysters; GC=geoduck clams; MC=manila clams; DC=dungeness crabs; St=purple seastar; jPer=juvenile shiner perch; He=Pacific herring; PP=pile perch; SP=striped seaperch; Sc=Pacific staghorn; So=English sole; WG=white-spotted greenling; Dg=spiny dogfish; SS=surf scoters; GA=Enteromorpha intestinalis; BA=Nereocystis luetkeana, Fucus gardneri; PK=plankton; BM=Mytilus edulis; PO=Crassostrea gigas; GC=Panope abrupta; MC=Tapes philippinarum; DC=Cancer magister; St=Pisaster ochraccus; jPer=Cymatogaster aggregata; He=Clupea harengus pallasi; PP=Rhacochilus vacca; SP=Embiotoca lateralis; Sc=Leptocottus armatus; So=Pleuronectes ventulus; WG=Hexogrammos stelleri; Dg=Squalus acanthias; SS=Melanitta perspicillata
Lipid Content, Test Temperature, pH, and Depuration Time	GA=0.2%; BA=0.08%; PK=0.09%; BM=1.3%; PO=2.1%; GC=0.7%; MC=1.2%; DC=8.0%; St=2.5-18%; jPer=2.1%; He=3.2%; PP=0.7%; SP=0.17%; Sc=0.3%; So=0.5%; WG=0.6%; Dg=8.3% (muscle) 62% (liver) 6-28% (embryo); SS=2.2%; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	marine, natural water; not applicable; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	environmental; not applicable; measured; concentration in samples (ng/g lipid): GA=4.07; BA=3.02; PK=4.22; BM=3.15; PO=3.49; GC=3.82; MC=3.06; DC=2.14; St=1.90; jPer=2.74; He=2.40; PP=2.99; SP=3.12; Sc=3.57; So=2.66; WG=3.14; Dg=2.12 (muscle) 2.06 (liver) 1.75 (embryo); SS=2.35
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable; 9 individual samples of each species.
Duration, Parameter, and Sampling Frequency	samples collected June-September 1999; food-web magnification factor (FWMF); mot applicable
Concentration	Not Reported
Analytical Method and Analytical Details	GC/LRMS; LC/ESI-MS; Not Reported;
Rate Constant and Results per Recovery	Not Reported; not applicable
Statistics, Basis, and Calculation Basis	Not Reported; total lipid content; Not Reported
Results Value and Results Details	0.34; lower-upper 95% interval (0.18-0.64)
Metabolites, Reference, and Results Reference Substance	not applicable; not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			

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Study Citation:	Mackintosh, C. E., Maldonado, J., Hongwu, J., Hoover, N., Chong, A., Ikonomou, M. G., Gobas, F. A. (2004). Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. Environmental Science & Technology 38(7):2011-2020.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789501

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	High	Test organism information was reported, including species or sex, age, and starting body weight.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	analytical methods used were suitable for detection and quantification of the target chemical and transformation product(s) and the lipid content or the lipid-normalized bioconcentration factor (BCF) was reported for BCF studies.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.

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Study Citation:	Mackintosh, C. E., Maldonado, J., Hongwu, J., Hoover, N., Chong, A., Ikonomou, M. G., Gobas, F. A. (2004). Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. Environmental Science & Technology 38(7):2011-2020.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789501

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; Stock solutions prepared in water; NR
Radiolabel, Source, State, Purity	14-C carbonyl labeled DEHP (1.64 mCi/mmol); Not Reported; NR; NR
Test Organism and Test Organism Details	Scud; Gammarus pseudolimnacus, n=18 (number of organisms in each sample replicate)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 21±1°C and 25°C; 7.4; None
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 0.1±0.01 and 62.8±3.31 µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 21±1°C and 25°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Days 1, 3, 7, 14 and 21
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting.; Beckman 200 L liquid scintillation counter.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Magnification factor after 1, 3, 7, 14 and 21 days: at 0.1 ug/L water: 2800, 5300, 13600, 13400, NR; at 62.8 µg/L and 25°C: 30, 100, 116, 270, and 260; Concentrations were derived from original specific activity, which was assumed to represent 14-C di-2-ethylhexyl phthalate
Metabolites, Reference, and Results Reference Substance	Not reported; Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.

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Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent among study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and maintained.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the endpoint of interest but the difference is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling methods were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final BCF values but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Health outcomes were not reported, but the omission is unlikely to have a substantial impact of the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The percent recovery was not reported and the analytical method could not distinguish metabolites from the parent compound, which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and sufficient data is not reported to conduct an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; Stock solutions prepared in water; NR
Radiolabel, Source, State, Purity	14-C carbonyl labeled DEHP (1.64 mCi/mmol); Not Reported; NR; NR
Test Organism and Test Organism Details	Midge larva; Chironomus phimsus, n=18 (number of organisms in each sample replicate)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 21±1°C; 7.4; None
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 0.3±0.04 µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 21±1°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Days 1, 3, 7, 14 and 21
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting.; Beckman 200 L liquid scintillation counter.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Magnification factor after 1, 3, 7, 14 and 21 days: 2400, 2600, 3100, NR, NR; Concentrations were derived from original specific activity, which was assumed to represent 14-C di-2-ethylhexyl phthalate
Metabolites, Reference, and Results Reference Substance	Not reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent among study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and maintained.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the endpoint of interest but the difference is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling methods were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final BCF values but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Health outcomes were not reported, but the omission is unlikely to have a substantial impact of the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The percent recovery was not reported and the analytical method could not distinguish metabolites from the parent compound, which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and sufficient data is not reported to conduct an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; Stock solutions prepared in water; NR
Radiolabel, Source, State, Purity	14-C carbonyl labeled DEHP (1.64 mCi/mmol); Not Reported; NR; NR
Test Organism and Test Organism Details	Water flea; Daphnia magna, n=180 (number of organisms in each sample replicate)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 21±1°C; 7.4; None
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 0.3±0.04 µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 21±1°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Days 1, 3, 7, 14 and 21
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting.; Beckman 200 L liquid scintillation counter.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Magnification factor after 1, 3, 7, 14 and 21 days: 1200, 2500, 5200, NR, NR; Concentrations were derived from original specific activity, which was assumed to represent 14-C di-2-ethylhexyl phthalate
Metabolites, Reference, and Results Reference Substance	Not reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent among study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and maintained.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the endpoint of interest but the difference is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling methods were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final BCF values but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Health outcomes were not reported, but the omission is unlikely to have a substantial impact of the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The percent recovery was not reported and the analytical method could not distinguish metabolites from the parent compound, which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and sufficient data is not reported to conduct an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; Stock solutions prepared in water; NR
Radiolabel, Source, State, Purity	14-C carbonyl labeled DEHP (1.64 mCi/mmol); Not Reported; NR; NR
Test Organism and Test Organism Details	Mayfly; Hexagenia bilineatas, n=9 (number of organisms in each sample replicate)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 21±1°C; 7.4; None
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 0.1±0.01 µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 21±1°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Days 1, 3, 7, 14 and 21
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting.; Beckman 200 L liquid scintillation counter.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Magnification factor after 1, 3, 7, 14 and 21 days: 850, 1000, 2300, NR, NR; Concentrations were derived from original specific activity, which was assumed to represent 14-C di-2-ethylhexyl phthalate
Metabolites, Reference, and Results Reference Substance	Not reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent among study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and maintained.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the endpoint of interest but the difference is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling methods were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final BCF values but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Health outcomes were not reported, but the omission is unlikely to have a substantial impact of the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The percent recovery was not reported and the analytical method could not distinguish metabolites from the parent compound, which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and sufficient data is not reported to conduct an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; Stock solutions prepared in water; NR
Radiolabel, Source, State, Purity	14-C carbonyl labeled DEHP (1.64 mCi/mmol); Not Reported; NR; NR
Test Organism and Test Organism Details	Sowbug; Asillus brericaudus, n=4 (number of organisms in each sample replicate)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 21±1°C and 25°C; 7.4; None
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; 1.9±0.012 and 62.3±3.31 µg/L
Test Type, Test Temperature, and Test Condition Comments	semi-static; 21±1°C and 25°C; Not Reported
Duration, Parameter, and Sampling Frequency	21 days; Not Reported; Days 1, 3, 7, 14 and 21
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting.; Beckman 200 L liquid scintillation counter.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Magnification factor after 1, 3, 7, 14 and 21 days: at 1.9 µg/L: NR, NR, 80, 71, and 70; at 62.3 µg/L and 25°C: NR, NR, 20, 230, 250; Concentrations were derived from original specific activity, which was assumed to represent 14-C di-2-ethylhexyl phthalate
Metabolites, Reference, and Results Reference Substance	Not reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Mayer Jr, F., Sanders, H. O., Walsh, D. F. (1973). Toxicity, residue dynamics, and reproductive effects of phthalate esters in aquatic invertebrates. Environmental Research 6(1):84-90.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1334646

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent among study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and maintained.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was reported and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the endpoint of interest but the difference is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling methods were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final BCF values but the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Health outcomes were not reported, but the omission is unlikely to have a substantial impact of the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The percent recovery was not reported and the analytical method could not distinguish metabolites from the parent compound, which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported and sufficient data is not reported to conduct an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mayer, F. L., Jr, Stalling, D. L., Johnson, J. L. (1972). Phthalate esters as environmental contaminants. Nature 238(5364):411-413.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1404359

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Preliminary study using continuous exposure via water
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Fathead minnow (Pimephales promelas); Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	not specified; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	Not reported; Not reported; Continuously
Duration, Parameter, and Sampling Frequency	28 days; other; Not reported
Concentration	2.5 µg/L
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	Not reported; The test substance was readily accumulated; residue concentrations in fish were 28 times that in the water after 28 days
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	No detail provided.
Metric 4:	Test Substance Stability	Uninformative	No detail provided.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	No detail provided.
Metric 6:	Testing Conditions	Uninformative	No detail provided.
Metric 7:	Testing Consistency	Uninformative	No detail provided.

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Study Citation:	Mayer, F. L., Jr, Stalling, D. L., Johnson, J. L. (1972). Phthalate esters as environmental contaminants. Nature 238(5364):411-413.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1404359

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Uninformative	No detail provided.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	Standard species used.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	No detail provided.
	Metric 12:	Test Substance Purity	N/A	No detail provided.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No details provided.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	No details provided.
	Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	No detail provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Informative quantitative data not reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Monsanto, (1983). Investigation of phthalate ester concentrations in a Michigan sewage pond.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1316180

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, and Guideline	No; Monitoring study; other: Non-guideline
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Samples collected from sewage lagoon at Michigan State University; Field samples; NR Notes: NR
Test Organism and Test Organism Details	Daphnia magna; Collected from municipal sewage lagoon
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Ambient; Not reported; Not reported
Media Type, TOC, and Salinity	Natural water,sewage lagoon; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Whole body; Not reported; Mesured
Test Type, Test Temperature, and Test Condition Comments	Field study; Ambient; Sample preparation: Environmental Sciences method ES-78-M-7 (water) and ES-78-M-6 (Daphnia)
Duration, Parameter, and Sampling Frequency	Not applicable; Not applicable; Not applicable
Concentration	= 421 (Daphnid); 1.1 (water) - = 754 (Daphnid); 1.5 (water) ppb
Analytical Method and Analytical Details	Sample analysis: GC/MS with external standard; Analytical standard: DMP, DEP, DBP, S-160, DCHP, DEHP, DUP at 2 Âµg/L; no additional details;
Rate Constant and Results per Recovery	Not reported; Recoveries from spiked samples were reported for DEHP = 48% and BBP = 83%
Statistics, Basis, and Calculation Basis	Relative error reported for DEHP: Â±29%; Not specified; Not applicable
Results Value and Results Details	No results for bioconcentration were obtained due to levels of phthalate esters in the blank and relative error in measurements.; Average Daphnia concentration: 594 ppb (blank: 336 ppb); average water concentration: 1.3 ppb (blank: 1.1 ppb)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The source was reported; purity and source of analytical standard not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	Blanks were included but reported high levels of phthalate esters and BCF values were not able to be calculated as a result.
Metric 4:	Test Substance Stability	Low	Test substance stability, homogeneity, preparation, and storage conditions were not reported or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions			

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Study Citation:	Monsanto, (1983). Investigation of phthalate ester concentrations in a Michigan sewage pond.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1316180

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Field conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in a field study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	High	Standard species evaluated.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome of interest. This is a serious flaw that makes the study unusable.
	Metric 12:	Test Substance Purity	High	Methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	With the exception of the blank measurements with high levels phthalate esters high relative error, sources of variability or uncertainty were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical detail was omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Standard error was only reported for DEHP as high as Â±29%
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study.

Overall Quality Determination — Uninformative

Study Citation:	Monsanto, (1983). Use of partition coefficients for estimation of bioconcentration potential of chemicals in the environment.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335359

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, and Guideline	No; Calculation; other: Non-guideline; estimation of BCF based on partition coefficients
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	NR; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	n-octanol/water; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; log Kow was measured by a shake flask method; value used to determine BF based on a linear relationship between measured partition coefficient and measured BF: log BF = 0.54 log P + 0.12
Duration, Parameter, and Sampling Frequency	1 week; Not Reported; NR
Concentration	= 1000 - NR NR ppm
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	NR; NR
Statistics, Basis, and Calculation Basis	NR; NR; log BF = 0.54 log P + 0.12
Results Value and Results Details	3.0; log P = 5.3 [BF = 0.54(5.3)+0.12 = 2.982]
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively
	Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Experimental conditions not reported.

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Study Citation:	Monsanto, (1983). Use of partition coefficients for estimation of bioconcentration potential of chemicals in the environment.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1335359

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods; training set for linear regression analysis was not reported.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements suggest that more validation is needed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical detail for experiment not reported; validation set not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were clearly described; linear regression data not provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	Low	Statistics on the external validation set are unavailable.

Overall Quality Determination — Low

Study Citation:	Muñoz-Ortuño, M., Moliner-Martínez, Y., Cogollos-Costa, S., Herráez-Hernández, R., Campíns-Falcó, P. (2012). A miniaturized method for estimating di(2-ethylhexyl) phthalate in bivalves as bioindicators. Journal of Chromatography A 1260:169-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333792

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Determination of DEHP in water and bivalve field samples.
Solvent, Reactivity, Storage, Stability	Acetonitrile (HPLC grade); NR; Stock solutions stored in acetonitrile at 10µg/mL. Working solutions were diluted in water.; NR
Radiolabel, Source, State, Purity	NR; Aldrich (Steinheim, Germany); NR; 99%
Test Organism and Test Organism Details	Mytilus galloprovincialis; Collected on coast of Comunidad Valenciana (Spain) and stored in acetonitrile-cleaned plastic bottles
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural sediment: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Field samples; Not reported; Bivalves showing DEHP levels similar to solid-phase blanks were dosed with 25, 50, 100, and 200 µg/L to measure recovery.
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Samples taken from same locations on coast.
Duration, Parameter, and Sampling Frequency	NA, field samples were collected.; Not Reported; Not applicable
Concentration	Not Reported
Analytical Method and Analytical Details	LC-UV-Vis; LOD for water samples: 10µg/L; LOD for bivalves: 170µg/kg;
Rate Constant and Results per Recovery	Not reported; 91±15%
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	A BCF was not reported and could not be calculated from the provided data.; Not reported
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were used in the study.
Metric 4:	Test Substance Stability	High	The test substance preparation, storage conditions, and homogeneity were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Muñoz-Ortuño, M., Moliner-Martínez, Y., Cogollos-Costa, S., Herráez-Hernández, R., Campíns-Falcó, P. (2012). A miniaturized method for estimating di(2-ethylhexyl) phthalate in bivalves as bioindicators. Journal of Chromatography A 1260:169-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333792

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some of the field conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The sample treatment was consistent.
	Metric 8:	System Type and Design	N/A	The system type (field sampling) is appropriate for the study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism is appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were clearly reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainties were not clearly reported which may effect the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	The limit of detection was not low enough to detect the concentrations in all but one of the bivalve samples and concentrations were not clearly reported or summarized for water samples. This made calculation of a useful BCF impossible.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical methods were not clearly reported and the data reporting does not allow for statistical analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	No BCF is directly reported by the authors, but the concentrations ranges in the water and bivalve samples are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Carp, bluegill, or fathead minnows; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; NR
Duration, Parameter, and Sampling Frequency	NR; BCF; NR
Concentration	NR -
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	Not Reported; NR
Statistics, Basis, and Calculation Basis	NR; NR; NR
Results Value and Results Details	850; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Struijs J, Stoltenkamp J; Ecotox Environ SAF 19: 204-11 (1989) HEROID not located.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Fathead minnows (Pimephales promelas); NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; NR
Duration, Parameter, and Sampling Frequency	NR; log BCF; NR
Concentration	NR -
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	Not Reported; NR
Statistics, Basis, and Calculation Basis	NR; NR; NR
Results Value and Results Details	2.93; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Veith G et al; J Fish Res Board Canada 36: 1040-8 (1979) HEROID 3421473

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Carp, bluegill, or fathead minnows; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; NR
Duration, Parameter, and Sampling Frequency	NR; BCF; NR
Concentration	NR -
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	Not Reported; NR
Statistics, Basis, and Calculation Basis	NR; NR; NR
Results Value and Results Details	< 0.1; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
	Metric 3: Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4: Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6: Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7: Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8: System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: NITE; Chemical Risk Information Platform (CHRIP). Biodegradation and Bioconcentration. Tokyo, Japan: NatlInst Tech Eval. Available from, as of Dec 23, 2014: http://www.safe.nite.go.jp/english/db.htmlHEROID 10176833

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, and Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Rainbow trout (Salmo gairdneri); NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	Water; NR; NR
Test Type, Test Temperature, and Test Condition Comments	NR; NR; NR
Duration, Parameter, and Sampling Frequency	NR; NR; NR
Concentration	NR -
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	Not Reported; NR
Statistics, Basis, and Calculation Basis	NR; NR; NR
Results Value and Results Details	Not Reported; Majority of the test substance did not reach systemic circulation and was present in the water as metabolites of pre-systemic branchial metabolism.
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination — Medium

* Related References: Barron MG et al; Toxicol Appl Pharmacol 98: 49-57 (1989) HEROID 679221

Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789349

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di(2-ethylhexyl)phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Monitoring data
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Netherlands fresh surface water and fish samples; NR; NR Notes: NA
Test Organism and Test Organism Details	bream and roach; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	0.1% to 5.1%; 8 (spring), 17 (summer) and 12 (autumn); NR; NA
Media Type, TOC, and Salinity	natural water - freshwater; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	field study; 8 (spring), 17 (summer) and 12 (autumn); NR
Duration, Parameter, and Sampling Frequency	NA, monitoring study; NA; 25 samples from the Netherlands in 1999
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	GC-MS; LOD = 100 ng/g fat of the fish;
Rate Constant and Results per Recovery	NR; 10 ng/mL internal standard of d4-DEHP
Statistics, Basis, and Calculation Basis	NA; wet weight; BCF = 5151.6 L/kg (calculated by reviewer)
Results Value and Results Details	10 fish samples DEHP concentration were below LOD; Fish = 1.7 mg/kg (wet, median concentration)= 0.0017 g/kg; Freshwater dissolved = 0.33 ug/L = 3.3e-7 g/LBCF = (0.0017 g/kg)/(3.3e-7 g/L) = 5151.6 L/kg
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789349

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported.
	Metric 10:	Sampling Methods	Low	The test organism was not obtained from a reliable or commercial source or routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789349

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Perez, K. T., Davey, E. W., Lackie, N. F., Morrison, G. E., Murphy, P. G., Soper, A. E., Winslow, D. L. (1983). Environmental assessment of a phthalate ester, Di(2-ethylhexyl) phthalate (DEHP) derived from a marine microcosm. Journal of ASTM International n/a:180-191.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5706411

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Nonguideline microcosm bioconcentration study
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	14C; 14C from American Radiochemical Corporation and 12C from Aldrich Chemical Company; NR; specific activities analyzed by HPLC and liquid scintillation radio spectrometry Notes: NR
Test Organism and Test Organism Details	Bivalves and zooplankton; A. clausii and A. tonsa, M. lateralis, N. incisa, P. morrhuana
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 1 and 18°C (average) for winter and summer samples; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Microcosm with test substance dosed in water and also partitions to sediment; Not reported; Measured
Test Type, Test Temperature, and Test Condition Comments	other; 1 and 18°C (average) for winter and summer samples; 140 L tanks containing seawater and a benthic box
Duration, Parameter, and Sampling Frequency	30 days; Bioaccumulation; water samples at 1, 2, 4, 8 and 24 hours; sediment at end of study
Concentration	1.01 - 101.1 ug/L
Analytical Method and Analytical Details	HPLC-liquid scintillation counting; extracted samples;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	nonlinear statistical program used for water samples; Not Reported; other
Results Value and Results Details	concentration in bivalves and zooplankton/concentration in water column; Mean concentration (summer and winter) over 30d ranging from 1-100 ug/L in water column: P. marrhuana 2.61 - 4.41 ug/kg-ww; M lateralis 2.76- 4.71 ug/kg-ww; Acartia sp 3.14 - 5.04 ug/kg-ww. Mean concentration (summer and winter) over 30 d ranging from 1-100 ug/L in sediment: N annutata 2.12-4.04 ug/kg-dw; N incisa 1.83-3.54 ug/kg-dw.
Metabolites, Reference, and Results Reference Substance	Degradation products including 14CO2; Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.

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Study Citation:	Perez, K. T., Davey, E. W., Lackie, N. F., Morrison, G. E., Murphy, P. G., Soper, A. E., Winslow, D. L. (1983). Environmental assessment of a phthalate ester, Di(2-ethylhexyl) phthalate (DEHP) derived from a marine microcosm. Journal of ASTM International n/a:180-191.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5706411

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment. Degradation and adsorption of the test substance occurred during the study.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcomes of interest were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported and these omissions were likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analyses were not reported in detail; however, sufficient data were provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Perez, K. T., Davey, E. W., Lackie, N. F., Morrison, G. E., Murphy, P. G., Soper, A. E., Winslow, D. L. (1983). Environmental assessment of a phthalate ester, Di(2-ethylhexyl) phthalate (DEHP) derived from a marine microcosm. Journal of ASTM International n/a:180-191.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5706411

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**Medium**	

* Related References: Cited in ECHA

Study Citation:	Ray, L. E., Murray, H. E., Giam, C. S. (1983). Organic pollutants in marine samples from Portland, Maine. Chemosphere 12(7-8):1031-1038.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5568740

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NA; Sediment stored refrigerated in glass jars topped with petroleum ether-rinsed aluminum foil; organism samples wrapped in aluminum foil and frozen; NA
Radiolabel, Source, State, Purity	NA; Samples collected from Portland, Maine, from the Fore River and Back Cove; NA; NA
Test Organism and Test Organism Details	Neanthes virens; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured, 740 ng/g (Fore River), 7800 ng/g (Back Cove)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Sediment and organism samples collected from the Fore River and Back Cove near Portland, Maine
Duration, Parameter, and Sampling Frequency	Samples collected November 1980; Not Reported; Not reported
Concentration	740 - 7800 ng/g
Analytical Method and Analytical Details	Gas chromatography with electron capture detector or flame ionization detector; Sediment refluxed with acetone/acetone nitrile and organism samples homogenized in acetone/acetonitrile, both were extracted with petroleum ether under basic and acidic conditions, basic extract was purified on Florisil column;
Rate Constant and Results per Recovery	Not applicable; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Tissue, not specified; steady state
Results Value and Results Details	BCF=0.66 and 0.05; Organism concentrations: 490 and 380 ng/g at Fore River and Back Cove sites, respectively. More industrial activity occurs in the Fore River but flushing from the river may prevent accumulation in sediment, compared to the stagnant more Back Cove. Difference in pollutant concentrations in organisms has less clear relationships.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical or field controls and/or reference site was not included.
	Metric 4:	Test Substance Stability	High	Sample storage and preparation reported and appropriate.

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Study Citation:	Ray, L. E., Murray, H. E., Giam, C. S. (1983). Organic pollutants in marine samples from Portland, Maine. Chemosphere 12(7-8):1031-1038.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5568740

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited environmental conditions and sample characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Medium	Species only reported; number, weight, lipid content, or other characteristics were not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were acceptable, frequency was not reported and may not be representative. Sampling does not account for possible seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many study details were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was appropriate; percent recovery and limits of detection were not reported. Lipid content and lipid normalized BCF were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not applied.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but the study omitted many details, one of the most important of which was organism lipid content.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Ray, L. E., Murray, H. E., Giam, C. S. (1983). Organic pollutants in marine samples from Portland, Maine. Chemosphere 12(7-8):1031-1038.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5568740

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NA; Sediment stored refrigerated in glass jars topped with petroleum ether-rinsed aluminum foil; organism samples wrapped in aluminum foil and frozen; NA
Radiolabel, Source, State, Purity	NA; Samples collected from Portland, Maine, from the Fore River and Back Cove; NA; NA
Test Organism and Test Organism Details	Clams; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured, 740 ng/g (Fore River), 7800 ng/g (Back Cove)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Sediment and organism samples collected from the Fore River and Back Cove near Portland, Maine
Duration, Parameter, and Sampling Frequency	Samples collected November 1980; Not Reported; Not reported
Concentration	740 - 7800 ng/g
Analytical Method and Analytical Details	Gas chromatography with electron capture detector or flame ionization detector; Sediment refluxed with acetone/acetone nitrile and organism samples homogenized in acetone/acetonitrile, both were extracted with petroleum ether under basic and acidic conditions, basic extract was purified on Florisil column;
Rate Constant and Results per Recovery	Not applicable; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Tissue, not specified; steady state
Results Value and Results Details	BCF=0.23 and 0.01; Organism concentrations: 170 and 110 ng/g at Fore River and Back Cove sites, respectively. More industrial activity occurs in the Fore River but flushing from the river may prevent accumulation in sediment, compared to the stagnant more Back Cove. Difference in pollutant concentrations in organisms has less clear relationships.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical or field controls and/or reference site was not included.
	Metric 4:	Test Substance Stability	High	Sample storage and preparation reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.

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Study Citation:	Ray, L. E., Murray, H. E., Giam, C. S. (1983). Organic pollutants in marine samples from Portland, Maine. Chemosphere 12(7-8):1031-1038.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5568740

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Limited environmental conditions and sample characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Low	General name only reported; number, weight, lipid content, or other characteristics were not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were acceptable, frequency was not reported and may not be representative. Sampling does not account for possible seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many study details were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was appropriate; percent recovery and limits of detection were not reported. Lipid content and lipid normalized BCF were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not applied.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were reasonable based on the method but the study omitted many details, one of the most important of which was organism species and lipid content.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Pungitius pungitius (stickleback); Fish
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	306; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Stickleback was active in metabolizing DEHP to MEHP and other polar metabolites; 9.2% of the total 14C was present as DEHP; Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Gammarus pulex; Bottom living microorganism
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	24456; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	MEHP, phthalic anhydride and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was a routine species commonly used in similar studies; however, minimal details were provided.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Limnephilus sp.; Larvae
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment was 73% and 65%, respectively. Total recovery of 14C added to system was 64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	19210; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Mono-EHP and polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Mentha aquatica; Plant
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	18292; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Plants were active in metabolizing DEHP to MEHP, phthalic anhydride and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Chara chara; Plant
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	18263; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Plants were active in metabolizing DEHP to MEHP, phthalic anhydride and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Planoribis corneus; Bottom living microorganism
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	17473; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Active in metabolizing DEHP to MEHP, phthalic acid and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Lamptera planeri (River lamprey); Fish
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	10563; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Lamprey was active in metabolizing DEHP to MEHP, phthalic anhydride and other polar metabolites; 10.1% of the total 14C was present as DEHP; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Dendrocoelum lacteum; Bottom living microorganism
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	4097; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Active in metabolizing DEHP to phthalic anhydride and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Sialis sp.; Larvae
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	2271; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Active in metabolizing DEHP to MEHP; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Helobdella sp.; Bottom living microorganism
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	1974; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Active in metabolizing DEHP to phthalic anhydride and other polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Low	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Chironomus sp.; Chironomids
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	1214; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	Active in metabolizing DEHP to polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was a species commonly used in similar studies; however, minimal details were provided.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl-hexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Closed system study on the bioaccumulation of DEHP in an aquatic laboratory ecosystem.
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] carbonyl-labeled DEHP, 10.73 MBq/mM; New England Nuclear; Solution; 99.5% Notes: NR
Test Organism and Test Organism Details	Phoxinus phoxinus (minnow); Fish
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10±3°C; Not reported; Not reported
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Oxygenated by a stream of air 18 ml/min; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environment (exposure to model ecosystem via water); Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	other; 10±3°C; Natural daylight regime
Duration, Parameter, and Sampling Frequency	27 days; other; Samples taken every 5 days
Concentration	1.43 mg/L
Analytical Method and Analytical Details	TLC and liquid scintillation; TLC and autoradiography were used to separate and identify DEHP and metabolites;
Rate Constant and Results per Recovery	Not reported; Recovery for spiked fish and sediment: 73% and 65%, respectively. Total recovery of 14C added to system=64%. Large amount of substance found on walls of container and sediment; amount taken up by organisms was relatively small; minimal aerosol loss
Statistics, Basis, and Calculation Basis	Not reported; not specified; other
Results Value and Results Details	178; Accumulation factor=concentration in organism/concentration in water
Metabolites, Reference, and Results Reference Substance	MEHP and polar metabolites; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Sodergren, A. (1982). Significance of interfaces in the distribution and metabolism of di-2-ethylhexyl phthalate in an aquatic laboratory model ecosystem. Environmental Pollution 27(4):263-274.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	59542

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Test conditions were documented, including water temperature, and oxygenation.
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was a routine species commonly used in similar studies; however, minimal details were provided.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The loss of test chemical and low recovery were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not reported; however, test substance doses were at concentration not expected to exert acute toxic effects on the exposed organisms.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis of the data set was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Comparable to other studies with reasonable discrepancies noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Streufert, J. M., Jones, J. R., Sanders, H. O. (1980). Toxicity and biological effects of phthalate esters on midges (Chironomus plumosus). Transactions of the Missouri Academy of Science 14:33-40.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	813673

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in third-instar midge larvae.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14-C-ring labelled DEHP from Pathfinder Laboratories, Inc., St. Louis, Missouri. Specific activity: 10.52 mCi/mM; Monsanto Chemical Company, St. Louis, Missouri; NR; NR
Test Organism and Test Organism Details	Midge larvae (Chironomus plumosus),; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±1°C; 7.4; 5 days
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; 270 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	14-C DEHP was added to the medium; Midge were transferred to DEHP free water after 4 days in one experiment to measure elimination.; Not reported
Test Type, Test Temperature, and Test Condition Comments	semi-static; 22±1°C; Static uptake phase, flow-through elimination phase.
Duration, Parameter, and Sampling Frequency	9 days; other; Daily
Concentration	0.2±0.02 µg/L
Analytical Method and Analytical Details	Not reported; Radiochemical measurements were made but the analytical method was not reported.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not Reported; Not Reported
Results Value and Results Details	BCF after 2 days (wet weight): 292. BCF after 7 days (wet weight): 408.; Elimination: 30% decrease after 1 day, 50% decrease after 3.4 days, 70% decrease after 5 days.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported; however the omissions are unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some of the details regarding the test substance preparation and storage were not reported.

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Study Citation:	Streufert, J. M., Jones, J. R., Sanders, H. O. (1980). Toxicity and biological effects of phthalate esters on midges (Chironomus plumosus). Transactions of the Missouri Academy of Science 14:33-40.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	813673

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test substance tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported differences in the testing conditions among the study groups.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Low	Some details regarding the test organism were not reported, including lipid content, which may have impact the study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some details regarding the sampling methods were not reported; however, the omissions are unlikely to have an impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Standard errors were reported in a figure and were unlikely to have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No adverse health effects were reported during the exposure periods.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was not reported; however, the omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not reported; however the omission is unlikely to have an impact on the results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Teil, M. J., Tlili, K., Blanchard, M., Chevreuil, M., Alliot, F., Labadie, P. (2012). Occurrence of Polybrominated Diphenyl Ethers, Polychlorinated Biphenyls, and Phthalates in Freshwater Fish From the Orge River (Ile-de France). Archives of Environmental Contamination and Toxicology 63(1):101-113.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1249662

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: BSAF field study
Solvent, Reactivity, Storage, Stability	iso-octane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Supelco by way of Sigma-Aldrich, St. Quentin Fallavier, France; NR; NR Notes: di-(2-ethylhexyl) phthalate
Test Organism and Test Organism Details	Roach, Chub, and Perch; Liver, gonad, and muscle from roach and muscle only for chub and perch
Lipid Content, Test Temperature, pH, and Depuration Time	Not applicable; Not applicable; Not applicable; Not applicable
Media Type, TOC, and Salinity	natural water: freshwater; Not applicable; Not applicable
Dissolved Oxygen, Conductivity, and Hardness	Not applicable; Not applicable; Not applicable
Exposure Route, Elimination, and Nominal Measurements	Field study; Not applicable; Not applicable
Test Type, Test Temperature, and Test Condition Comments	Not applicable; Not applicable; Orge river fish, water and sediment study
Duration, Parameter, and Sampling Frequency	Not applicable; other; sediment and water (n=8) and fish collected 3 times in a year (July and October 2009, April 2010)
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; Electronic impact detector, EPA methodCP5C-CHC1001-09.01, March 2009;
Rate Constant and Results per Recovery	Not Reported; 92.5% in river water, 59.2% in riverbed sediment and 65.0% in fish tissue
Statistics, Basis, and Calculation Basis	averages and SD reported; total lipid content; other
Results Value and Results Details	Roach: 1.0±2.7, Chub: 0.5±0.7, and Perch: 1.3±0.7; BSAF
Metabolites, Reference, and Results Reference Substance	Not reported; Not applicable; NA; Field study

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	Source and purity of analytical standard reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	This metric does not apply to field studies.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Teil, M. J., Tlili, K., Blanchard, M., Chevreuil, M., Alliot, F., Labadie, P. (2012). Occurrence of Polybrominated Diphenyl Ethers, Polychlorinated Biphenyls, and Phthalates in Freshwater Fish From the Orge River (Ile-de France). Archives of Environmental Contamination and Toxicology 63(1):101-113.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1249662

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Adequate sediment, water, and test organism characteristics were reported.
	Metric 7:	Testing Consistency	High	Exposure conditions were reported and comparable across groups; sampling and analytical methods were consistent across all groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Reported variability was not likely to influence the outcome of the assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	BAF values were not explicitly reported for the phthalate studies and actual concentrations measured throughout the study were not reported; however, these details were not likely to have a substantial impact on the study result interpretation.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some statistical calculation details were omitted; however, these details were not likely to have a substantial impact on the study result interpretation.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Carboxy-labeled C-14 di(2-ethylhexyl)phthalate (9.74 mCi/mmole); California Bionuclear Corporation (Sun Valley, California, labelled); Aldrich Chemical Company (Milwaukee, WI, unlabeled); NR; NR Notes: Mix of labelled and unlabeled compounds
Test Organism and Test Organism Details	American oyster, Crassostrea virginica; Collected from Galveston Bay, Texas
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	other; Not reported; 20 to 30 o/oo
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal 100 ppb (10 ppb labelled, 0 ppb unlabeled) and 500 ppb (10 ppb labelled, 490 ppb unlabeled)
Test Type, Test Temperature, and Test Condition Comments	static; Not reported; Test solution allowed to equilibrate 30 minutes after dosing; concentrations decreased 30-70% during experiment, possibly due to sorption to oyster shells
Duration, Parameter, and Sampling Frequency	24 hours; Not Reported; Once
Concentration	100 - 500 ppb
Analytical Method and Analytical Details	GC with electron capture detector and liquid scintillation counting; Organism samples homogenized 2x in Sorval Omni-Mixer with chloroform:methanol, filtered, extracts combined;
Rate Constant and Results per Recovery	Not reported; 90%
Statistics, Basis, and Calculation Basis	3-way ANOVA with General Linear Model; n=2; BCF not significantly different for species studies ($p > F=0.5201$), but was significantly different between phthalate esters studied ($p > F=0.0179$) and concentrations studied ($p > F=0.0198$); Muscle; steady state
Results Value and Results Details	BCF=11.2±3.3 (100 ppb) and 6.9±2.2 (500 ppb); Biodegradability index (ratio of metabolites to unmetabolized diester, average of exposures): 0.29
Metabolites, Reference, and Results Reference Substance	Average of 100 and 500 ppb exposures: 74.3% unmetabolized, 17.6% monoester, 3.8% phthalic acid, 4.4% in residue; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A baseline organism measurement was not conducted, control group was not explicitly included.

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Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	Test substance ratio of labelled to unlabeled compound and nominal concentrations were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Only salinity was reported, no other testing conditions were included.
	Metric 7:	Testing Consistency	High	Test set up was consistent across study groups.
	Metric 8:	System Type and Design	High	The system was allowed to equilibrate and was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species and source were reported, no other characteristics included.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate, focused on the correct media, and were collected at an acceptable frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The organisms were collected from the wild and may have had pre-accumulated the test substance; the organisms were allowed to equilibrate to the laboratory for 4 days but no control/baseline concentrations were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No effects to organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported and appropriate; percent recovery was reported. Lipid normalized BCF or lipid content were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were acceptable based on the method however a lipid normalized value was not reported and no control or baseline measurements were reported for the organism which were collected from the natural environment; BCF may be incorrectly higher if not corrected for baseline concentrations.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Carboxy-labeled C-14 di(2-ethylhexyl)phthalate (9.74 mCi/mmole); California Bionuclear Corporation (Sun Valley, California, labelled); Aldrich Chemical Company (Milwaukee, WI, unlabeled); NR; NR Notes: Mix of labelled and unlabeled compounds
Test Organism and Test Organism Details	Brown shrimp, Penaecus aztecus; Collected from Galveston Bay, Texas
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	other; Not reported; 20 to 30 o/oo
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal 100 ppb (10 ppb labelled, 0 ppb unlabeled) and 500 ppb (10 ppb labelled, 490 ppb unlabeled)
Test Type, Test Temperature, and Test Condition Comments	static; Not reported; Test solution allowed to equilibrate 30 minutes after dosing
Duration, Parameter, and Sampling Frequency	24 hours; Not Reported; Once
Concentration	100 - 500 ppb
Analytical Method and Analytical Details	GC with electron capture detector and liquid scintillation counting; Organism samples homogenized 2x in Sorval Omni-Mixer with chloroform:methanol, filtered, extracts combined;
Rate Constant and Results per Recovery	Not reported; 90%
Statistics, Basis, and Calculation Basis	3-way ANOVA with General Linear Model; n=2; BCF not significantly different for species studies ($p > F=0.5201$), but was significantly different between phthalate esters studied ($p > F=0.0179$) and concentrations studied ($p > F=0.0198$); Whole organism; steady state
Results Value and Results Details	BCF=10.2±0.5 (100 ppb) and 16.6±12.9 (500 ppb); Biodegradability index (ratio of metabolites to unmetabolized diester, average of exposures): 0.86
Metabolites, Reference, and Results Reference Substance	Average of 100 and 500 ppb exposures: 50.1% unmetabolized, 7.6% monoester, 23.5% phthalic acid, 11.4% polar metabolites, 6.3% in residue; Not reported; Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A baseline organism measurement was not conducted, control group was not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance ratio of labelled to unlabeled compound and nominal concentrations were reported.

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Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Only salinity was reported, no other testing conditions were included.
	Metric 7:	Testing Consistency	High	Test set up was consistent across study groups.
	Metric 8:	System Type and Design	High	The system was allowed to equilibrate and was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species and source were reported, no other characteristics included.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate, focused on the correct media, and were collected at an acceptable frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The organisms were collected from the wild and may have had pre-accumulated the test substance; the organisms were allowed to equilibrate to the laboratory for 4 days but no control/baseline concentrations were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No effects to organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported and appropriate; percent recovery was reported. Lipid normalized BCF or lipid content were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were acceptable based on the method however a lipid normalized value was not reported and no control or baseline measurements were reported for the organism which were collected from the natural environment; BCF may be incorrectly higher if not corrected for baseline concentrations.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Carboxy-labeled C-14 di(2-ethylhexyl)phthalate (9.74 mCi/mmole); California Bionuclear Corporation (Sun Valley, California, labelled); Aldrich Chemical Company (Milwaukee, WI, unlabeled); NR; NR Notes: Mix of labelled and unlabeled compounds
Test Organism and Test Organism Details	Sheepshead minnow, Cyprinodon variegatus; Collected from Galveston Bay, Texas
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	other; Not reported; 20 to 30 o/oo
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Nominal 100 ppb (10 ppb labelled, 0 ppb unlabeled) and 500 ppb (10 ppb labelled, 490 ppb unlabeled)
Test Type, Test Temperature, and Test Condition Comments	static; Not reported; Test solution allowed to equilibrate 30 minutes after dosing
Duration, Parameter, and Sampling Frequency	24 hours; Not Reported; Once
Concentration	100 - 500 ppb
Analytical Method and Analytical Details	GC with electron capture detector and liquid scintillation counting; Organism samples homogenized 2x in Sorval Omni-Mixer with chloroform:methanol, filtered, extracts combined;
Rate Constant and Results per Recovery	Not reported; 90%
Statistics, Basis, and Calculation Basis	3-way ANOVA with General Linear Model; BCF not significantly different for species studies ($p > F=0.5201$), but was significantly different between phthalate esters studied ($p > F=0.0179$) and concentrations studied ($p > F=0.0198$); Whole organism; steady state
Results Value and Results Details	BCF=10.7 (100 ppb) and 13.5 (500 ppb); Biodegradability index (ratio of metabolites to unmetabolized diester, average of exposures): 13.67
Metabolites, Reference, and Results Reference Substance	Average of 100 and 500 ppb exposures: 12.9% unmetabolized, 13.8% monoester, 40.1% phthalic acid, 30.5% polar metabolites, 2.8% in residue; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A baseline organism measurement was not conducted, control group was not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance ratio of labelled to unlabeled compound and nominal concentrations were reported.
Domain 3: Test Conditions				

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Study Citation:	Wofford, H. W., Wilsey, C. D., Neff, G. S., Giam, C. S., Neff, J. M. (1981). Bioaccumulation and metabolism of phthalate esters by oysters, brown shrimp, and sheepshead minnows. Ecotoxicology and Environmental Safety 5(2):202-210.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	789995

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Only salinity was reported, no other testing conditions were included.
	Metric 7:	Testing Consistency	High	Test set up was consistent across study groups.
	Metric 8:	System Type and Design	High	The system was allowed to equilibrate and was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Organism species and source were reported, no other characteristics included.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate, focused on the correct media, and were collected at an acceptable frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The organisms were collected from the wild and may have had pre-accumulated the test substance; the organisms were allowed to equilibrate to the laboratory for 4 days but no control/baseline concentrations were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No effects to organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported and appropriate; percent recovery was reported. Lipid normalized BCF or lipid content were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were acceptable based on the method however a lipid normalized value was not reported and no control or baseline measurements were reported for the organism which were collected from the natural environment; BCF may be incorrectly higher if not corrected for baseline concentrations.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Cai, Q. Y., Xiao, P., Chen, T., Lu, H., Zhao, H., Zeng, Q., Li, Y., Li, H.,ui, Xiang, L.,ei, Mo, C. (2015). Genotypic variation in the uptake, accumulation, and translocation of di-(2-ethylhexyl) phthalate by twenty cultivars of rice (Oryza sativa L.). Ecotoxicology and Environmental Safety 116:50-58.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2854555

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di-(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; accumulation in rice; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; dichloromethane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Tianjin Chemical Reagent Factory, China; o2si Smart Solution, USA; NR; >98.5%; 99.8% Notes: pot experiments; analytical
Test Organism and Test Organism Details	7 common and 13 hybrid cultivars of rice; Rice seeds were obtained from Guangdong Academy of Agricultural Science and South China Agricultural University, China.
Lipid Content, Test Temperature, pH, and Depuration Time	not applicable; not reported; not reported; not applicable
Moisture, TOC, and Test Conditions Comments	pots in 2-3 cm water; soil organic matter 30.2 g/kg; soil: N/P/K 1.26/1.79/18.0 g/kg; CEC 7.67 cmol/kg; 33.5/18.5/48% sand/silt/clay
Nominal Measured and Time Plateau	19.68+/-0.23 mg/kg; not reported
Duration, Parameter, and Sampling Frequency	not reported; individual plant parts; growing stages: Tillering; Jointing; Flowering; Ripening
Analytical Method and Analytical Details	GC/MS; analytical recovery 87.4-107.2%; detection limit 2.5 ug/kg; limit of quantification 8.3 ug/kg;
Results Value, Result Type, and Results Standard Deviation	Normal roots/shoots (mg/kg): Tillering 2.27-4.71/1.74-2.47; jointing 1.55-11.8/0.67-1.78; flowering 1.46-6.13/0.60-1.91; ripening 1.11-5.72/0.95-2.18; Hybrid roots/shoots (mg/kg): tillering 1.88-3.57/1.07-3.32; jointing 0.26-10.61/0.40-1.56; flowering 0.98-5.51/0.68-1.72; ripening 1.01-2.08/0.93-7.58/; translocation factors: Normal root-stem/stem-leaf/shoot-grain: 0.38-14.55/0.85-3.87/0.07-3.73; hybrid root-stem/stem-leaf/shoot-grain: 0.15-13.2/0.17-4.67/0.04-1.96; Normal root-stem/stem-leaf/shoot-grain: +/-0.00-1.40/0.11-0.84/0.02-4.80; hybrid root-stem/stem-leaf/shoot-grain: +/-0.02-5.98/0.02-1.36/0.03-2.24
Calculation Basis and Basis	other; not applicable
Elimination, Metabolites, Kinetic Parameter, and Statistics	not reported; not reported; cultivars Tianfengyou 316, Wuyou 308 and Peizataifeng were ideal cultivars for planting in soil with low or medium levels of DEHP.; based on an adult daily intake of polished rice of 220 g, adult DEHP intake would be 0.36-12.8 ug/kg-bw-day

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Cai, Q. Y., Xiao, P., Chen, T., Lu, H., Zhao, H., Zeng, Q., Li, Y., Li, H.,ui, Xiang, L.,ei, Mo, C. (2015). Genotypic variation in the uptake, accumulation, and translocation of di-(2-ethylhexyl) phthalate by twenty cultivars of rice (Oryza sativa L.). Ecotoxicology and Environmental Safety 116:50-58.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2854555

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	the test organism is not routinely used for this study type; however, this not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Differences in plant uptake of the test substance were discussed, no other notable uncertainties or variation was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Cai, Q. Y., Xiao, P., Chen, T., Lu, H., Zhao, H., Zeng, Q., Li, Y., Li, H.,ui, Xiang, L.,ei, Mo, C. (2015). Genotypic variation in the uptake, accumulation, and translocation of di-(2-ethylhexyl) phthalate by twenty cultivars of rice (Oryza sativa L.). Ecotoxicology and Environmental Safety 116:50-58.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2854555

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Cai, Q., Mo, C., Wu, Q., Zeng, Q. (2008). Polycyclic aromatic hydrocarbons and phthalic acid esters in the soil-radish (Raphanus sativus) system with sewage sludge and compost application. Bioresource Technology 99(6):1830-1836.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	698314

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: BCF determined for radishes grown in a mixture of soil, sewage sludge, and sludge compost
Solvent, Reactivity, Storage, Stability	Extracted from plant with ether and acetone/DCM; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Sewage sludge from Datansha Wastewater Treatment Plant in Guangzhou, China, and sludge compost source not reported; Solid; NA Notes: Composite stock standard solution 1000 µg/mL, 99.8% purity was used
Test Organism and Test Organism Details	other; Raphanus sativus - radish
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 5.4, 6.5, and 7.2 per media respectively; Not applicable
Moisture, TOC, and Test Conditions Comments	70% water holding capacity; 4.6, 173, 235 g/kg per media respectively; Mixture of soil, sewage sludge, and sludge compost
Nominal Measured and Time Plateau	Control (100% soil), application rates of 10, 20, and 40 g/kg soil of sewage sludge (4.4 mg/kg DEHP), and application rate of 10 g/kg soil sludge compost (16 mg/kg DEHP); Not reported
Duration, Parameter, and Sampling Frequency	64 days; other; Once, at study termination
Analytical Method and Analytical Details	Gas chromatography - mass spectrometry; Limits of detection reported in other study;
Results Value, Result Type, and Results Standard Deviation	0.40 (shoot), 0.08(root); BCF; Not Reported
Calculation Basis and Basis	steady state; organ d.w.
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported, in addition to the source and purity of internal standards
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control (soil growth medium only) was included and tested valid
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were reported and appropriate for the method. Some reporting omissions during the study included plant lipid content and soil parameters such as CEC, however this is not expected to have a significant impact on study results.

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Study Citation:	Cai, Q., Mo, C., Wu, Q., Zeng, Q. (2008). Polycyclic aromatic hydrocarbons and phthalic acid esters in the soil-radish (Raphanus sativus) system with sewage sludge and compost application. Bioresource Technology 99(6):1830-1836.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	698314

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and were reported.
	Metric 8:	System Type and Design	High	The study system was assumed to be at equilibrium and capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported and is routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used sampling methods that address the outcomes of interest and are widely accepted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for in data evaluation and were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups and there were no reported differences among the study groups in organism attrition.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical detection limits for the test substance were reported in other studies, and the lipid content of the test organism was not reported, however these omissions are not expected to significantly impact the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and calculations were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were plausible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Cited in ECHA

Study Citation:	Chi, J., Gao, J. (2015). Effects of Potamogeton crispus L.-bacteria interactions on the removal of phthalate acid esters from surface water. Chemosphere 119:59-64.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2510797

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Removal of phthalate acid esters from surface water in a plant-water system study
Solvent, Reactivity, Storage, Stability	Absolute ethanol; NR; stored in a refrigerator (4 deg. C) prior to use; NR
Radiolabel, Source, State, Purity	NR; Sigma; stock solutions prepared in absolute ethanol (2 g/L); 99% Notes: DEHP
Test Organism and Test Organism Details	other; Potamogeton crispus L. (pondweed)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 7.9 (before) 7.7 (after); Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Surface water from Haihe River (not autoclaved)
Nominal Measured and Time Plateau	Measured; Not reported
Duration, Parameter, and Sampling Frequency	10 days; other; Not reported
Analytical Method and Analytical Details	GC-FID; MDL: 1 ug/L (water), 0.01 mg/kg (plant, fresh wt basis); average recovery: 96.3% (water), 94.1% (plant);
Results Value, Result Type, and Results Standard Deviation	67.4-157.6 L/kg (Plant concentration factor); BCF; Not Reported
Calculation Basis and Basis	other; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	25.5% of DEHP transferred from water to plants; 73.3% was retained in the plant and 26.7% was degraded.; Not reported; Plant uptake: 0.762/d, plant release: 0.572/d, microbial degradation in water: 0.082/d, plant degradation: 0.012/d; Data compared by ANOVA; comparisons of means by Duncan's test; significance value $P < 0.05$

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were included to assess non-autoclaved water and P. crispus, non-autoclaved water and no P. crispus, and an abiotic control with autoclaved water and no P. crispus.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions and monitoring thereof; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent. The conditions of the exposure were documented.

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Study Citation:	Chi, J., Gao, J. (2015). Effects of Potamogeton crispus L.-bacteria interactions on the removal of phthalate acid esters from surface water. Chemosphere 119:59-64.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2510797

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	axenic P. crispus was rinsed with sterile distilled water and placed in the remaining flasks with non-autoclaved water sample for 3 d; P. crispus containing a consortium of associated microorganisms was used for the study; therefore biodegradation and/or uptake via bacteria cannot be not ruled out.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency and percent recovery were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Plant accumulation of atmospheric test substance
Solvent, Reactivity, Storage, Stability	NA; NA; NR; NR
Radiolabel, Source, State, Purity	NA; Test substance was emissions from Hangzhou Xinguang Plastic Factory in Hangzhou, Zhejiang, Province, China; atmospheric; NA Notes: DEHP standard was purchases from Sigma Shanghai Division
Test Organism and Test Organism Details	other; Brassica campestris L. (Field mustard)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants were planted 0.2, 0.4, 0.8, and 1.6 Km north, south, east, and west from a plastic factory in Hangzhou, China. North was downwind and had the highest exposure
Nominal Measured and Time Plateau	Measured average in air: 12.8 $\pm$ 1.8, 9.6 $\pm$ 1.48, 5.0 $\pm$ 0.74, and 0.27 $\pm$ 0.051 at northern sites increasingly further from the plant; Not applicable
Duration, Parameter, and Sampling Frequency	1 April to 21 July; 111 days; other; air samples collected every 15d
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry; test material in plant average of 3 replicates, recover was 81.3 - 97.8%;
Results Value, Result Type, and Results Standard Deviation	4.1E3, 4.1E3, 5.8E3, and 1.1E5; BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not applicable; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported and pure analytical standards were used for detection.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent controls.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type, field studies.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Atmospheric conditions (temperature, humidity, etc.) and soil parameters were not reported but these omissions are not likely to substantially influence study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.

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Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species and age were reported and are routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency were reported and analytical methods were suitable for quantification. The limit of detection was not reported however this is not expected to have a substantial impact to study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Plant accumulation of atmospheric test substance
Solvent, Reactivity, Storage, Stability	NA; NA; NR; NR
Radiolabel, Source, State, Purity	NA; Test substance was emissions from Hangzhou Xinguang Plastic Factory in Hangzhou, Zhejiang, Province, China; atmospheric; NA Notes: DEHP standard was purchases from Sigma Shanghai Division
Test Organism and Test Organism Details	other; Vigna unguiculata Walp. (cowpea)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants were planted 0.2, 0.4, 0.8, and 1.6 Km north, south, east, and west from a plastic factory in Hangzhou, China. North was downwind and had the highest exposure
Nominal Measured and Time Plateau	Measured average in air: 12.8 $\pm$ 1.8, 9.6 $\pm$ 1.48, 5.0 $\pm$ 0.74, and 0.27 $\pm$ 0.051 at northern sites increasingly further from the plant; Not applicable
Duration, Parameter, and Sampling Frequency	1 April to 21 July; 111 days; other; air samples collected every 15d
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry; test material in plant average of 3 replicates, recover was 81.3 - 97.8%;
Results Value, Result Type, and Results Standard Deviation	1.5E3, 1.5E3, 1.9E3, and 2.3E4; BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not applicable; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported and pure analytical standards were used for detection.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent controls.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type, field studies.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Atmospheric conditions (temperature, humidity, etc.) and soil parameters were not reported but these omissions are not likely to substantially influence study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.

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Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species and age were reported and are routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency were reported and analytical methods were suitable for quantification. The limit of detection was not reported however this is not expected to have a substantial impact to study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Plant accumulation of atmospheric test substance
Solvent, Reactivity, Storage, Stability	NA; NA; NR; NR
Radiolabel, Source, State, Purity	NA; Test substance was emissions from Hangzhou Xinguang Plastic Factory in Hangzhou, Zhejiang, Province, China; atmospheric; NA Notes: DEHP standard was purchases from Sigma Shanghai Division
Test Organism and Test Organism Details	other; Solanum melongena L. (Eggplant)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants were planted 0.2, 0.4, 0.8, and 1.6 Km north, south, east, and west from a plastic factory in Hangzhou, China. North was downwind and had the highest exposure
Nominal Measured and Time Plateau	Measured average in air: 12.8 $\pm$ 1.8, 9.6 $\pm$ 1.48, 5.0 $\pm$ 0.74, and 0.27 $\pm$ 0.051 at northern sites increasingly further from the plant; Not applicable
Duration, Parameter, and Sampling Frequency	1 April to 21 July; 111 days; other; air samples collected every 15d
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry; test material in plant average of 3 replicates, recover was 81.3 - 97.8%;
Results Value, Result Type, and Results Standard Deviation	2.8E3, 2.7E3, 3.3E3, and 3.1E4; BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not applicable; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported and pure analytical standards were used for detection.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent controls.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type, field studies.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Atmospheric conditions (temperature, humidity, etc.) and soil parameters were not reported but these omissions are not likely to substantially influence study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.

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Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species and age were reported and are routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency were reported and analytical methods were suitable for quantification. The limit of detection was not reported however this is not expected to have a substantial impact to study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Plant accumulation of atmospheric test substance
Solvent, Reactivity, Storage, Stability	NA; NA; NR; NR
Radiolabel, Source, State, Purity	NA; Test substance was emissions from Hangzhou Xinguang Plastic Factory in Hangzhou, Zhejiang, Province, China; atmospheric; NA Notes: DEHP standard was purchases from Sigma Shanghai Division
Test Organism and Test Organism Details	other; Brassica chinensis L. (Bok choy)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants were planted 0.2, 0.4, 0.8, and 1.6 Km north, south, east, and west from a plastic factory in Hangzhou, China. North was downwind and had the highest exposure
Nominal Measured and Time Plateau	Measured average in air: 12.8 $\pm$ 1.8, 9.6 $\pm$ 1.48, 5.0 $\pm$ 0.74, and 0.27 $\pm$ 0.051 at northern sites increasingly further from the plant; Not applicable
Duration, Parameter, and Sampling Frequency	1 April to 21 July; 111 days; other; air samples collected every 15d
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry; test material in plant average of 3 replicates, recover was 81.3 - 97.8%;
Results Value, Result Type, and Results Standard Deviation	3.4E3, 3.3E3, 4.7E3, and 4.5E4; BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not applicable; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported and pure analytical standards were used for detection.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent controls.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type, field studies.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Atmospheric conditions (temperature, humidity, etc.) and soil parameters were not reported but these omissions are not likely to substantially influence study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.

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Study Citation:	Du, Q., Wang, J., Fu, X., Xia, H. (2010). Diffusion and accumulation in cultivated vegetable plants of di-(2-ethylhexyl) phthalate (DEHP) from a plastic production factory. Food Additives & Contaminants: Part A, Chemistry, Analysis, Control, Exposure & Risk Assessment 27(8):1186-1192.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	697329

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species and age were reported and are routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency were reported and analytical methods were suitable for quantification. The limit of detection was not reported however this is not expected to have a substantial impact to study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3661424

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Di(2-ethylhexyl)phthalate
Confidentiality, EndPoint, Type, Guideline	None; Plant BCF; Experimental; other: Not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	corn, potatoes, lettuce, carrot (top), chilli plant, soybeans and wheat.; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; NR
Nominal Measured and Time Plateau	NR; NR
Duration, Parameter, and Sampling Frequency	NR; NR; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	BCFs ranged 0.01 to 5.9 with highest BCFs in corn and potatoes and lowest BCF values from lettuce, carrot (top), chilli plant, soybeans and wheat; BCF; NR
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was low or not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Control details were not reported.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method was not reported in detail.
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported in detail.
	Metric 7:	Testing Consistency	Low	Testing consistency details were not reported.

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Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3661424

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	System type and design details were not reported in detail.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Lipid normalized BCF and lipid content were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

* Related References: No primary reference cited

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial depuration rate; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Earthworm; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; NR
Nominal Measured and Time Plateau	NR; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	NR; Not Reported; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Depuration rate = 0.04/d; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Low

* Related References: Staples CA, Peterson DR, Parkerton TF, Adams WJ (1997). A literature review: The environmental fate of phthalate esters. Chemosphere 35, 667-749.HEROID not located.

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Fescue; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	0.022, 0.22, and 2.2 mg/kg mean concentration; 0.044, 0.44, 4.4 mg/kg initial soil conc; 0.011, 0.11, 1.1 mg/kg final soil conc; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	1.3, 1.2, and 1.4, per concentration respectively, based on the mean of the initial and final soil concentrations; BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Overcash, MR, Webber, JB, Tucker, W (1986). Toxic and Priority Organics in Municipal Sludge Land Treatment Systems. Unpublished Report EPA/600/2-86/010, PB 86 150208. HEROID not located. May be related to HEROID 6820105 and 5243691

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Corn; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	0.022, 0.22, and 2.2 mg/kg mean concentration; 0.044, 0.44, 4.4 mg/kg initial soil conc; 0.011, 0.11, 1.1 mg/kg final soil conc; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.4, 0.1, and 2.1, per concentration respectively, based on the mean of the initial and final soil concentrations; BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Overcash, MR, Webber, JB, Tucker, W (1986). Toxic and Priority Organics in Municipal Sludge Land TreatmentSystems. Unpublished Report EPA/600/2-86/010, PB 86 150208. HEROID not located. May be related to HEROID 6820105 and 5243691

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Soybean; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	0.022, 0.22, and 2.2 mg/kg mean concentration; 0.044, 0.44, 4.4 mg/kg initial soil conc; 0.011, 0.11, 1.1 mg/kg final soil conc; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0, 0.05, and 0.005, per concentration respectively, based on the mean of the initial and final soil concentrations; BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Overcash, MR, Webber, JB, Tucker, W (1986). Toxic and Priority Organics in Municipal Sludge Land Treatment Systems. Unpublished Report EPA/600/2-86/010, PB 86 150208. HEROID not located. May be related to HEROID 6820105 and 5243691

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Wheat; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	0.022, 0.22, and 2.2 mg/kg mean concentration; 0.044, 0.44, 4.4 mg/kg initial soil conc; 0.011, 0.11, 1.1 mg/kg final soil conc; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.21, 0.14, and 0.14, per concentration respectively, based on the mean of the initial and final soil concentrations; BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Overcash, MR, Webber, JB, Tucker, W (1986). Toxic and Priority Organics in Municipal Sludge Land Treatment Systems. Unpublished Report EPA/600/2-86/010, PB 86 150208. HEROID not located. May be related to HEROID 6820105 and 5243691

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Lettuce; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	2.65 - 14.02 mg/kg; NR
Duration, Parameter, and Sampling Frequency	115 d; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.47; BCF; Not Reported
Calculation Basis and Basis	Steady state, initial soil concentrations; Dry weight
Elimination, Metabolites, Kinetic Parameter, and Statistics	Parent not detected in plant tissue; 14C due to metabolites.; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Aranda JM, O'Connor GA, Eiceman GA (1989). Effects of sewage sludge on di-(2-Ethylhexyl) phthalate uptake by plants. J. Environ. Qual. 18, 45-50. HEROID 1335971Not previously extracted.

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Carrot; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	2.65 - 14.02 mg/kg; NR
Duration, Parameter, and Sampling Frequency	115 d; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.28 (tops), 0.13 (roots); BCF; Not Reported
Calculation Basis and Basis	Steady state, initial soil concentrations; Dry weight
Elimination, Metabolites, Kinetic Parameter, and Statistics	Parent not detected in plant tissue; 14C due to metabolites.; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Cited Aranda JM, O'Connor GA, Eiceman GA (1989). Effects of sewage sludge on di-(2-Ethylhexyl) phthalate uptake by plants. J. Environ. Qual. 18, 45-50. HEROID 1335971

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Chilli; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	2.65 - 14.02 mg/kg; NR
Duration, Parameter, and Sampling Frequency	115 d; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.15 (plants), 0.08 (fruit); BCF; Not Reported
Calculation Basis and Basis	Steady state, initial soil concentrations; Dry weight
Elimination, Metabolites, Kinetic Parameter, and Statistics	Parent not detected in plant tissue; 14C due to metabolites.; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Cites: Aranda JM, O'Connor GA, Eiceman GA (1989). Effects of sewage sludge on di-(2-Ethylhexyl) phthalate uptake by plants. J. Environ. Qual. 18, 45-50. HEROID 1335971

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Fescue; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	2.65 - 14.02 mg/kg; NR
Duration, Parameter, and Sampling Frequency	115 d; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.24; BCF; Not Reported
Calculation Basis and Basis	Steady state, initial soil concentrations; Dry weight
Elimination, Metabolites, Kinetic Parameter, and Statistics	Parent not detected in plant tissue; 14C due to metabolites.; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Aranda JM, O'Connor GA, Eiceman GA (1989). Effects of sewage sludge on di-(2-Ethylhexyl) phthalate uptake by plants. J. Environ. Qual. 18, 45-50. HEROID 1335971

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; nan; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; NR; NR; NR
Test Organism and Test Organism Details	Barley grains; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Greenhouse conditions
Nominal Measured and Time Plateau	sludge application rate: 5 ton dw/ha containing 116 mg/kgd dw DEHP in sludge; not detected in fertilizer; not reported in pig slurry; NR
Duration, Parameter, and Sampling Frequency	NR; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.22% uptake from sludge; detected in plants grown ion N-fertilizer and pig slurry amended soil.; Not Reported; Not Reported
Calculation Basis and Basis	NR; Not Reported
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not Reported; NR; Not Reported; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Kirchmann H, Tengswed A (1991). Organic pollutants in sewage sludge. 2. Analysis of barley grains grown on sludge-fertilized soil, Swedish J. agric. Res. 21 115-119HEROID 1333321

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Earthworm (Eisenia foetida); Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; NR
Nominal Measured and Time Plateau	up to 1,000 mg/kg; NR
Duration, Parameter, and Sampling Frequency	14 d; Not Reported; NR
Analytical Method and Analytical Details	NR; NR;
Results Value, Result Type, and Results Standard Deviation	0.2 (dry wt); 0.034 (wet wt, converted from 0.15 conversion factor); BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	679933

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Hüls AG (1998). Acute Toxicity of DEHP Towards Earthworms (Eisenia foetida). Unpublished Report RW 71, 3/4/1998.HEROID not located.

Study Citation:	Hu, X. Y., Wen, B., Zhang, S., Shan, X. Q. (2005). Bioavailability of phthalate congeners to earthworms (Eisenia fetida) in artificially contaminated soils. Ecotoxicology and Environmental Safety 62(1):26-34.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	481534

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Biota-to-soil accumulation factor (BSAF) at steady state conditions
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard Inc (New Haven, CT, USA); NR; pesticide grade Notes: DEHP
Test Organism and Test Organism Details	Eisenia fetida - [Annelida]; Earthworms from Agricultural University of China (Beijing, China)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22°C; Soil 1 = 7.58; Soil 2= 8.28; 24 hours
Moisture, TOC, and Test Conditions Comments	40% water holding capacity; organic matter: Soil 1 = 1.35 Soil 2 = 4.53%; 5.0, 10.0, 20.0, 40.0 and 50.0 mg/kg added to 2 Chinese agricultural and forest soils
Nominal Measured and Time Plateau	Not reported; 15 days was selected to assess the near equilibrium relationship between the concentrations of phthalates in soils and those in earthworms
Duration, Parameter, and Sampling Frequency	15 days; other; At 5, 10, 15, 20, and 30 days worms were sampled for uptake kinetics.
Analytical Method and Analytical Details	GC-ECD; LOD = 6.14 ug/kg;
Results Value, Result Type, and Results Standard Deviation	0.244 (soil 1); 0.073 (soil 2); BSAF; Not Reported
Calculation Basis and Basis	steady state; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	BSAF = ku/keku: 0.030/day Ke: 0.123/day (soil 1) ku: 0.010/day Ke: 0.130/day (soil 2); Not reported; ku: uptake rate constant (d-1). Ke: elimination rate constant (d-1).; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Concurrent control groups were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity and preparation were reported, and were appropriate for the study
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.

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Study Citation:	Hu, X. Y., Wen, B., Zhang, S., Shan, X. Q. (2005). Bioavailability of phthalate congeners to earthworms (Eisenia fetida) in artificially contaminated soils. Ecotoxicology and Environmental Safety 62(1):26-34.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	481534

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Some sampling details were omitted but this was unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Some detail lacking; however that statistical analysis reported is acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Hu, X. Y., Wen, B., Zhang, S., Shan, X. Q. (2005). Bioavailability of phthalate congeners to earthworms (Eisenia fetida) in artificially contaminated soils. Ecotoxicology and Environmental Safety 62(1):26-34.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	481534

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Biota-to-soil accumulation factor (BSAF) at steady state conditions
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard Inc (New Haven, CT, USA); NR; pesticide grade Notes: DEHP
Test Organism and Test Organism Details	Eisenia fetida - [Annelida]; Earthworms from Agricultural University of China (Beijing, China)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22°C; Soil 1 = 7.58; Soil 2= 8.28; 24 hours
Moisture, TOC, and Test Conditions Comments	40% water holding capacity; organic matter: Soil 1 = 1.35 Soil 2 = 4.53%; 5.0, 10.0, 20.0, 40.0 and 50.0 mg/kg added to 2 Chinese agricultural and forest soils
Nominal Measured and Time Plateau	Not reported; 15 days was selected to assess the near equilibrium relationship between the concentrations of phthalates in soils and those in earthworms
Duration, Parameter, and Sampling Frequency	15 days; other; At 5, 10, 15, 20, and 30 days worms were sampled for uptake kinetics.
Analytical Method and Analytical Details	GC-ECD; LOD = 6.14 ug/kg;
Results Value, Result Type, and Results Standard Deviation	0.13-0.20 (soil 1); 0.06-0.08 (soil 2); range from 5 test concentrations; BSAF; Not Reported
Calculation Basis and Basis	steady state; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	BSAF = Cworm/Csoil^s (s = 0.77); Not reported; linear regression analysis of logCworm versus logCsoil; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Concurrent control groups were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity and preparation were reported, and were appropriate for the study
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system was appropriate.

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Study Citation:	Hu, X. Y., Wen, B., Zhang, S., Shan, X. Q. (2005). Bioavailability of phthalate congeners to earthworms (Eisenia fetida) in artificially contaminated soils. Ecotoxicology and Environmental Safety 62(1):26-34.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	481534

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Some sampling details were omitted but this was unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Some detail lacking; however that statistical analysis reported is acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Larson, P., Thuren, A. (1987). D-2-ethylhexylphthlalate inhibits the hatching of frog eggs and is bioaccumulated by tadpoles. Environmental Toxicology and Chemistry 6(6):417-422.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5508563

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexylphthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Bioaccumulation in tadpoles hatched from eggs exposed to contaminated sediment
Solvent, Reactivity, Storage, Stability	Ethanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Kebo-Grave (Sweden); NR; 97%
Test Organism and Test Organism Details	frog eggs; moorfrog (Rana arvalis) eggs; tadpoles hatched around 2 - 3 weeks after frog eggs were added to DEHP treated soil
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; 5°C; not reported; not reported
Moisture, TOC, and Test Conditions Comments	not reported; 21-33% organic content based on dry weight; Uptake from tadpoles measured after hatching from eggs exposed to contaminated sediment; sediment, water, and frog eggs collected from pond in southern Sweden; DEHP mixed into sediment for final concentration between 10-800 µg/g fresh wt, 5 replicates at 8 concentrations tested.
Nominal Measured and Time Plateau	measured; not reported
Duration, Parameter, and Sampling Frequency	60 days (eggs hatched after 3 wks, tadpoles were swimming 1 wk later; samples collection and analysis at 60 days); other; not reported
Analytical Method and Analytical Details	capillary GC/MS; Recovery from sediment ranged from 66-120%;
Results Value, Result Type, and Results Standard Deviation	0.97 (partitioning coefficient between sediment and tadpoles); 1.1 (partitioning coefficient based on uptake from water); BSAF; Not Reported
Calculation Basis and Basis	steady state; whole body w.w.
Elimination, Metabolites, Kinetic Parameter, and Statistics	DEHP accumulated in tadpoles at concentrations from 0.28-246.8 µg/g fresh weight; uptake increased with increasing DEHP in both sediment and water.; not reported; not reported; r squared = 0.93; p <0.001 (sediment); r squared = 0.94; p <0.001 (water)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were included; results not reported.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation and storage conditions were not reported; however, these factors were not likely to have influenced the test substanceor were not likely to have had a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Larson, P., Thuren, A. (1987). D-2-ethylhexylphthlalate inhibits the hatching of frog eggs and is bioaccumulated by tadpoles. Environmental Toxicology and Chemistry 6(6):417-422.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5508563

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Information on species was reported; limited detail on test conditions was provided. However, these omissions were not likely to have had a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Based on limited detail, testing was consistent among groups.
	Metric 8:	System Type and Design	High	System type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Outcome assessment methodology was appropriate.
	Metric 12:	Test Substance Purity	High	No sampling limitations were noted that would have influenced the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were omitted; this limited the validity of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Li, Y.,an, Huang, G., Gu, H.,ua, Huang, Q., Lou, C., Zhang, L.,ei, Liu, H. (2018). Assessing the Risk of Phthalate Ester (PAE) Contamination in Soils and Crops Irrigated with Treated Sewage Effluent. Water 10(8):999.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5041214

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Not applicable; bioaccumulation in soil-grain systems
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Reclaimed water from Gaobeidian Sewage Treatment Plant and groundwater; NA; NA Notes: Analytical standard obtained from Beijing Bailingwei Technologies Co. Ltd. Beijing, China, mixture of 6 PAEs each at 2000 mg/L
Test Organism and Test Organism Details	Winter wheat, Triticum aestivum L.; Varieties: Jimai (2015 only), Zhongmai, Shimai, Nongda, Shifu, Lunxuan (2016 only)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 11.0 - 12.0°C (mean annual); 7.2 - 7.7 (reclaimed water), 7.6- 8.3 (groundwater); Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants irrigated at depth 75 - 160 mm with reclaimed water, groundwater or a 1:1 mixture of reclaimed water and groundwater four times for the 2015 harvest and 6 times for the 2016 harvest
Nominal Measured and Time Plateau	PAE concentration 2.63 - 3.43 ug/L (reclaimed water), 2.01 - 2.03 ug/L (groundwater); Resulting DEHP in topsoil(2015 and 2016): 2.39 and 1.01 (reclaimed), 1.88 and 1.02 (mix), 1.26 and 1.26 (groundwater) mg/kg; Not applicable
Duration, Parameter, and Sampling Frequency	Planting until Harvest: October 2014 to June 2015 and October 2015 to June 2016; Not Reported; Once, crop harvest
Analytical Method and Analytical Details	GC-MS operated on electron impact and selective ion monitoring mode; LOD 0.032 - 0.191 ug/kg; Soil Soxhlet extracted with acetone and methyl alcohol, grain Soxhlet extracted with n-hexane; extracts dehydrated and concentrated, flowed through anhydrous Na2SO4, concentrated under N2 stream and by rotary evaporator; recovery 70-120%;
Results Value, Result Type, and Results Standard Deviation	1.42 and 1.55 (reclaimed water), 1.43 and 1.63 (mixed water), 1.18 and 1.30 (ground water); BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not applicable; Not reported; Not applicable; IBM SPSS Statistics software package and Microsoft Excel; ANOVA and LSD and 5% level to determine significant differences; no significant effects of reclaimed groundwater

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The source of the reclaimed water and groundwater was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Controls were not explicitly included.
Metric 4:	Test Substance Stability	Medium	Irrigation water preparation or storage was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Li, Y.,an, Huang, G., Gu, H.,ua, Huang, Q., Lou, C., Zhang, L.,ei, Liu, H. (2018). Assessing the Risk of Phthalate Ester (PAE) Contamination in Soils and Crops Irrigated with Treated Sewage Effluent. Water 10(8):999.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5041214

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Characteristics of the irrigation water were reported (pH), soil moisture and other characteristics were not reported but this is not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Agricultural field studies can be assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism species and variety was reported, height and grain yield at harvest reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was suitable for the determination of bioaccumulation factors
	Metric 12:	Test Substance Purity	High	Sampling methods analyzed appropriate phases and one-time sampling at harvest was appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Varieties of plant had comparable accumulation of the test substance, no other notable uncertainties or variation was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No significant differences in plant height or grain yield among varieties or study groups was reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, extraction recovery and limits of detection were reported. BCF was not lipid normalized and lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Li, Y.,an, Huang, G., Gu, H.,ua, Huang, Q., Lou, C., Zhang, L.,ei, Liu, H. (2018). Assessing the Risk of Phthalate Ester (PAE) Contamination in Soils and Crops Irrigated with Treated Sewage Effluent. Water 10(8):999.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5041214

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Not applicable; bioaccumulation in soil-grain systems
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Reclaimed water from Gaobeidian Sewage Treatment Plant and groundwater; NA; NA Notes: Analytical standard obtained from Beijing Bailingwei Technologies Co. Ltd. Beijing, China, mixture of 6 PAEs each at 2000 mg/L
Test Organism and Test Organism Details	Summer maize, Zea mays L.; Varieties: Jiyuan, Jingdan, Xinyu, Tianyumi, and Nianyumi
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 11.0 - 12.0°C (mean annual); 7.2 - 7.7 (reclaimed water), 7.6- 8.3 (groundwater); Not applicable
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants irrigated at depth 50 - 130 mm with reclaimed water, groundwater or a 1:1 mixture of reclaimed water and groundwater once per month
Nominal Measured and Time Plateau	PAE concentration 2.63 - 3.43 ug/L (reclaimed water), 2.01 - 2.03 ug/L (groundwater); Resulting DEHP in topsoil: 1.06 (reclaimed), 0.80 (mix), 0.64 (groundwater) mg/kg; Not applicable
Duration, Parameter, and Sampling Frequency	Planting until Harvest: June 2015 to September 2015; Not Reported; Once, crop harvest
Analytical Method and Analytical Details	GC-MS operated on electron impact and selective ion monitoring mode; LOD 0.032 - 0.191 ug/kg; Soil Soxhlet extracted with acetone and methyl alcohol, grain Soxhlet extracted with n-hexane; extracts dehydrated and concentrated, flowed through anhydrous Na2SO4, concentrated under N2 stream and by rotary evaporator; recovery 70-120%;
Results Value, Result Type, and Results Standard Deviation	1.16 (reclaimed water), 1.90 (mixed water), 2.21 (ground water); BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not applicable; Not reported; Not applicable; IBM SPSS Statistics software package and Microsoft Excel; ANOVA and LSD and 5% level to determine significant differences; no significant effects of reclaimed groundwater

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source of the reclaimed water and groundwater was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Irrigation water preparation or storage was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Characteristics of the irrigation water were reported (pH), soil moisture and other characteristics were not reported but this is not likely to impact study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.

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Study Citation:	Li, Y.,an, Huang, G., Gu, H.,ua, Huang, Q., Lou, C., Zhang, L.,ei, Liu, H. (2018). Assessing the Risk of Phthalate Ester (PAE) Contamination in Soils and Crops Irrigated with Treated Sewage Effluent. Water 10(8):999.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5041214

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Agricultural field studies can be assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism species and variety was reported, height and grain yield at harvest reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was suitable for the determination of bioaccumulation factors
	Metric 12:	Test Substance Purity	High	Sampling methods analyzed appropriate phases and one-time sampling at harvest was appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Varieties of plant had comparable accumulation of the test substance, no other notable uncertainties or variation was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No significant differences in plant height or grain yield among varieties or study groups was reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, extraction recovery and limits of detection were reported. BCF was not lipid normalized and lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	LUA, (2016). Phthalate esters in soil, plastic film, and vegetable from greenhouse vegetable production bases in Beijing, China: Concentrations, sources, and risk assessment. Science of the Total Environment 568:1037-1043.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3350219

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Field study; other: Not reported
Solvent, Reactivity, Storage, Stability	NA; NR; Soil and plastic film samples stored in aluminum bags, all samples stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Greenhouse vegetable production bases in Changping, Shunyi, and Yanqing, China; NA; NA Notes: Standard mixture of 15 PAEs at a concentration of 1000 mg/L obtained from O2SI, Inc., Charleston, South Carolina
Test Organism and Test Organism Details	Onion, celery, pepper, tomato, bitter gourd, eggplant, and long podded cowpea; n = 16
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 7.07 (range: 6.12 - 8.54); Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; soil organic matter 24.4 g/kg (range: 4.37 - 75.2 g/kg); Plant and soil samples collected from greenhouse vegetable production facilities to determine potential transfer and bioaccumulation of PAEs from plastic mulching film used at the facility.
Nominal Measured and Time Plateau	n=60; average measured 0.38 mg/kg; Not applicable
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; May - July 2014
Analytical Method and Analytical Details	GC-MS in electron impact and selective ion monitoring modes; Detection limit 0.00023 - 0.0008 mg/L; Freeze dried soil and vegetable samples ground and homogenized, extracted 2x into acetone:hexane, concentrated by rotary evaporator, extracts cleaned on a glass column; recovery 79.3-108.6%;
Results Value, Result Type, and Results Standard Deviation	1.45; BCF; Not Reported
Calculation Basis and Basis	steady state; edible fraction
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not applicable; Not reported; Not applicable; Pearson correlation matric $p < 0.05$ and $p < 0.01$

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample and analytical standard sources were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Procedural blanks were included and at appropriate levels.
Metric 4:	Test Substance Stability	High	The sample storage conditions and preparation were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported (temperature, moisture, duration).
Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	LUA, (2016). Phthalate esters in soil, plastic film, and vegetable from greenhouse vegetable production bases in Beijing, China: Concentrations, sources, and risk assessment. Science of the Total Environment 568:1037-1043.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3350219

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established and test systems were capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism reported by common name only, mass and life stage not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was addressed in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health or attrition were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	BCFs were calculated by reviewer. Organism concentrations not separated by species, lipid content not reported, data range not reported (median and max only). Limits of detection and extraction recovery reported, the analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The detected concentrations were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Ma, T. T., Christie, P., Luo, Y. M., Teng, Y. (2013). Phthalate esters contamination in soil and plants on agricultural land near an electronic waste recycling site. Environmental Geochemistry and Health 35(4):465-476.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1597686

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis (2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: BCF in plants
Solvent, Reactivity, Storage, Stability	NR; NR; The dried soil samples were grinded and sieved through a 60-mesh screen and the plant samples were homogenized in liquid nitrogen prior to storage at -20C for subsequent analysis; NR
Radiolabel, Source, State, Purity	NR; A mixed standard purchased from AccuStandard, Inc., (1mg/mL) composed of DMP, DEP, BBP, DnBP, DEHP, DnOP, was used for analytical purposes; NR; NR Notes: NR
Test Organism and Test Organism Details	other; agricultural plant material
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 25C; soil pH = 5.56; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; 36.5 g/kg; Plots of vegetable and plants (VP - Vegetable Plot, C-carrot, CL-carrot leaves, CFL-cauliflower leaves, R-radish, RL-Radish leaves; GP: green manure plots in which the alfalfa(Medicago sativa L.)) were grown using soils treated with a mixed standard of PAEs and planted by broadcast sowing (GP-B) or drilling (GP-D)
Nominal Measured and Time Plateau	Measured; Not reported
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; 110 samples of paddy soil and plant material were collected in winter 2010 from an electronic waste dismantling site in Taizhou city, China.
Analytical Method and Analytical Details	GC-MS; following a modification of USEPA method 8270C (1996); MDL: 68-135 ug/kg; IDL: 0.11-0.35 ug/L; recovery rates in spiked soils at 100 ug/kg were 75.8-107.61% blanks included;
Results Value, Result Type, and Results Standard Deviation	DEHP: Approximate BCFs for plants under different treatments (taken from bar graph): VP-R = 125, VP-CF = 80, VP-C = 85, VP-PL = 86, VP-RL = 75, VP-CFL = 45, VP-CL = 55, GP-D = 20, GP-B = 25; BCF; Not Reported
Calculation Basis and Basis	steady state; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not reported; data were processed with Microsoft Excel 2003 and the SPSS v.14.0 software package; level of significance ($p<0.05$)

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The source was reported; purity was omitted, however, there are sufficient analytical detail.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were appropriate for this type of study.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions			

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Study Citation:	Ma, T. T., Christie, P., Luo, Y. M., Teng, Y. (2013). Phthalate esters contamination in soil and plants on agricultural land near an electronic waste recycling site. Environmental Geochemistry and Health 35(4):465-476.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1597686

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing condition reporting but the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Data were reported in a bar graph.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Details regarding statistical methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Ma, T., Luo, Y., Christie, P., Teng, Y., Liu, W. (2012). Removal of phthalic esters from contaminated soil using different cropping systems: A field study. European Journal of Soil Biology 50:76-82.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5522239

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis (2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Phytoremediation of phthalates with alfalfa monoculture (A), alfalfa and E. splendors intercropping (AE), alfalfa and S. plumbizincicola intercropping (AS), and alfalfa, E. splendors and S. plumbizincicola intercropping (AES)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard, Inc., New Haven, CT; A mixed standard solution of thesix PAE compounds (1 mg/mL) and the internal standard benzyl benzoate solution (5 mg/mL); NR Notes: DEHP
Test Organism and Test Organism Details	other; Alfalfa: Medicago sativa L. (A), E. splendors (E), S. plumbizincicola (S)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; average temperature ranged from 14 to 23C; 5.56; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; organic matter 36.5 g/kg; Paddy soil, a sandy loam, classified as a Hortic Anthrosol. Silt, clay, and sand 52.7%, 17.2%, and 30.1%. Soil porosity 39.67%.
Nominal Measured and Time Plateau	Measured; Not reported
Duration, Parameter, and Sampling Frequency	2 years of cropping; other; Soil and shoots of individual plant species of each treatment were sampled over one month
Analytical Method and Analytical Details	GC-MS following a modification of USEPA method 8270C with Agilent 7890GC-5975 MSD GC-MS.; Recoveries in spiked soils ranged from 75.88 and 107.61%; instrument detection limits ranged from 0.11-0.35 ug/L, method detection limits ranged from 68-135 ug/kg;
Results Value, Result Type, and Results Standard Deviation	Cat is the residual concentration, Cap is the individual concentration of the target compound in plant shoot samples; See elimination (data too large for this field); BSAF; Not Reported
Calculation Basis and Basis	BCF = Cap/Cat; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	BCF - approximation from bar graph (treatment condition) = 100 (A), 90 (AS-S), 100 (AS-A), 90 (AE-E), 100 (AE-A), 50 (AES-S), 65 (AES-E), 95 (AES-A); Not reported; Not reported; $p < 0.05$

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included in the study.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation was minimally described.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Non-guideline field study with limited detail.
	Metric 6:	Testing Conditions	Medium	Test conditions were not fully reported in the study.
	Metric 7:	Testing Consistency	High	Available test conditions were consistent across replicates and study groups.

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Study Citation:	Ma, T., Luo, Y., Christie, P., Teng, Y., Liu, W. (2012). Removal of phthalic esters from contaminated soil using different cropping systems: A field study. European Journal of Soil Biology 50:76-82.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5522239

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Field study; therefore, equilibrium is assumed.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism species reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling methods addressed the outcomes of interest and used widely accepted approaches
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were not explicitly considered in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Quality assurance and quality controls were described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; Terrestrial BCF; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Water spinach (Ipomoea aquatica); NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; Grown on sludge from waste water treatment plants in China
Nominal Measured and Time Plateau	NR; Not Reported
Duration, Parameter, and Sampling Frequency	NR; NR; NR
Analytical Method and Analytical Details	NR; Not Reported;
Results Value, Result Type, and Results Standard Deviation	0.02 - 0.11; BCF; Not Reported
Calculation Basis and Basis	NR; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; NR; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Cai QY et al; Bull Environ Contam Toxicol 77: 411-8 (2006)Not previously extracted. HEROID 5348364

Study Citation:	Petersen, S. O., Henriksen, K., Mortensen, G. K., Krogh, P. H., Brandt, K. K., Sørensen, J., Madsen, T., Petersen, J., Grøn, C. (2003). Recycling of sewage sludge and household compost to arable land: Fate and effects of organic contaminants, and impact on soil fertility. Soil & Tillage Research 72(2):139-152.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1336804

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	no; terrestrial; field study; other: Plant uptake
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	barley; grown in 2000, last year of experiment
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; average 7.6°C; 6.8 (Askov); 6.3 (Lundgaard); not applicable
Moisture, TOC, and Test Conditions Comments	not reported; not applicable; not reported
Nominal Measured and Time Plateau	0.4-55 mg/kg dry weight; not applicable
Duration, Parameter, and Sampling Frequency	not reported; Not Reported; once
Analytical Method and Analytical Details	GC-MS; detection limit 0.1 mg/kg DM (assumed to be dry matter);
Results Value, Result Type, and Results Standard Deviation	DEHP was detected at 0.092-1.09 mg/kg in stems and leaves in Askov and <0.1 to 0.787 mg/kg in stems and leaves in Lundgaard fields; it was not detected in grain of plants grown in Askov nor Lundgaard; NR; NR
Calculation Basis and Basis	other; Not Reported
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not Reported; Not Reported; Not Reported; to the amounts applied in the waste products there was no relation

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by common name.
	Metric 2: Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4: Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7: Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Petersen, S. O., Henriksen, K., Mortensen, G. K., Krogh, P. H., Brandt, K. K., Sørensen, J., Madsen, T., Petersen, J., Grøn, C. (2003). Recycling of sewage sludge and household compost to arable land: Fate and effects of organic contaminants, and impact on soil fertility. Soil & Tillage Research 72(2):139-152.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1336804

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results. The system type and design were not capable of appropriately maintaining substance concentrations or not described but the deviation was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	Medium	Limited information is available for the test species.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such absence of details was not likely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited data are reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — Medium

Study Citation:	Sablayrolles, C., Montréjaud-Vignoles, M., Benanou, D., Patria, L., Treilhou, M. (2005). Development and validation of methods for the trace determination of phthalates in sludge and vegetables. Journal of Chromatography A 1072(2):233-242.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	789400

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; concentrations in plant materials; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Cluzeau Info Labo (France); NR; NR
Test Organism and Test Organism Details	tomato plants (Lycopersicum esculentum var Rondello F1); roots, leaves, fruits tested
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Moisture, TOC, and Test Conditions Comments	not reported; not reported; plant containers inside a temperature and humidity regulated plant house dosed with pure substance
Nominal Measured and Time Plateau	not reported; not reported
Duration, Parameter, and Sampling Frequency	not reported; other; not reported
Analytical Method and Analytical Details	GC-MS; limit of detection 0.003 ug/mL; quantification limit 0.01 ug/mL;
Results Value, Result Type, and Results Standard Deviation	173238 (roots); 269 (leaves); <10 (fruit) ug/kg dry matter; <10 (sap) ug/kg fresh matter; concentration; ±1000 (roots); ±36 (leaves) ug/kg dry matter
Calculation Basis and Basis	other; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	not reported; not reported; not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and molecular formula.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results
Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.

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Study Citation:	Sablayrolles, C., Montréjaud-Vignoles, M., Benanou, D., Patria, L., Treilhou, M. (2005). Development and validation of methods for the trace determination of phthalates in sludge and vegetables. Journal of Chromatography A 1072(2):233-242.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	789400

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	The test organism, species, or inoculum source are not routinely used for similar study types or were not appropriate for the evaluation of the specific outcome(s) of interest or route.
	Metric 10:	Sampling Methods	Low	The test organism or species is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Sablayrolles, C., Montréjaud-Vignoles, M., Benanou, D., Patria, L., Treilhou, M. (2005). Development and validation of methods for the trace determination of phthalates in sludge and vegetables. Journal of Chromatography A 1072(2):233-242.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	789400

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	None; concentrations in plant materials; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Cluzeau Info Labo (France); NR; NR
Test Organism and Test Organism Details	tomato plants (Lycopersicum esculentum var Rondello F1); roots, leaves, fruits tested
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Moisture, TOC, and Test Conditions Comments	not reported; not reported; plant containers inside a temperature and humidity regulated plant house dosed with sludge tea
Nominal Measured and Time Plateau	not reported; not reported
Duration, Parameter, and Sampling Frequency	not reported; other; not reported
Analytical Method and Analytical Details	GC-MS; limit of detection 0.003 ug/mL; quantification limit 0.01 ug/mL;
Results Value, Result Type, and Results Standard Deviation	1350 (roots); 234 (leaves); 10 (fruit) ug/kg dry matter; 314 (sap) ug/kg fresh matter; concentration; ±57 (roots); ±65 (leaves); ±2 (fruit) ug/kg dry matter; ±78 (sap) ug/kg fresh matter
Calculation Basis and Basis	other; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	not reported; not reported; not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and molecular formula.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results
Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results

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Study Citation:	Sablayrolles, C., Montréjaud-Vignoles, M., Benanou, D., Patria, L., Treilhou, M. (2005). Development and validation of methods for the trace determination of phthalates in sludge and vegetables. Journal of Chromatography A 1072(2):233-242.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	789400

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	The test organism, species, or inoculum source are not routinely used for similar study types or were not appropriate for the evaluation of the specific outcome(s) of interest or route.
	Metric 10:	Sampling Methods	Low	The test organism or species is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Sablayrolles, C., Silvestre, J., Lhoutellier, C., Montrejaud-Vignoles, M. (2013). Phthalates uptake by tomatoes after biosolids application: worst case and operational practice in greenhouse conditions. Fresenius Environmental Bulletin 22(4A):1064-1074.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2215509

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Transfer of phthalates from biosolids to tomato plants (Lycopersicon esculentum) in a greenhouse experiment using two techniques - aquiculture (hydroponic conditions) and soil culture.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Cluzeau Info Labo (France); NR; pure form Notes: DEHP
Test Organism and Test Organism Details	other; Tomato plant: Lycopersicon esculentum cv
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Aquiculture: 5.2 to 6.5; Soil culture: 7.6; Not reported
Moisture, TOC, and Test Conditions Comments	water capacity 24%; NR; calcareous soil density = 1.5; Aquiculture: pure substances or biosolids filtrate introduced after 50 and 90d respectively, into containers with cultivated plants grown to 30 cm; Soil culture: biosolids added to mimic land application before winter, biosolids added with water to obtain 2/3 holding capacity for 17 days seedlings planted in soil-biosolid mixtures. Biosolids: A - municipal wastewater treatment plant, B - sludge compost, C - municipal and industrial wastewater treatment plant
Nominal Measured and Time Plateau	Mass of DEHP in pots: Aquiculture pure - 84 mg, biosolids - 22 mg, Soil culture: A - 1.16 mg, B - 0.65 mg, C - 1.32 mg; Not reported
Duration, Parameter, and Sampling Frequency	Aquiculture: 10 days after introduction of the pure substances or biosolids filtrates; Soil culture: Fruits, leaves and roots were collected at 90 days after sowing.; other; Not reported
Analytical Method and Analytical Details	HRGC-LRMS: high resolution gas phase chromatograph coupled to a low resolution mass spectrometer; LOQ = 10 ug/kg dw; solid/liquid extraction with Soxtec System HT2, purification with Florisil SPE cartridge, repeatability = 0.9%, reproducibility of overall extraction-purification-analysis = 4%, recovery = >85%;
Results Value, Result Type, and Results Standard Deviation	Roots: 0.002-0.02; leaves: 0-1.67; fruits: 0-0.28; BCF; Not Reported
Calculation Basis and Basis	other; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	BCF data - Aquiculture - Pure substances experiment BCF = Root: 0.02, leaves: 0, Fruits: 0; Sludge filtrate experiment BCF = Root: 0.006, leaves: 0.0007, Fruits: 0.0003; Soil culture - Biosolids A experiment BCF = Root: 0.002, leaves: 0.03, Fruits: 0.05; Biosolids B experiment BCF = Root: 0.07, leaves: 1.67, Fruits: 0.28; Biosolids C experiment BCF = Root: 0.003, leaves: 0.16, Fruits: 0.04; Not reported; Not reported; Variance analysis of data and a Newman-Keuls multiple range tests at 0.05 probability level was performed (Statistical Software, Sigma Stat 2.00).

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source was reported; and a 'pure' substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were included, details not reported.

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Study Citation:	Sablayrolles, C., Silvestre, J., Lhoutellier, C., Montrejaud-Vignoles, M. (2013). Phthalates uptake by tomatoes after biosolids application: worst case and operational practice in greenhouse conditions. Fresenius Environmental Bulletin 22(4A):1064-1074.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2215509

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance and biosolid sample stability, homogeneity, preparation or storage conditions were not reported; however, these factors do not limit the interpretation of the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported omissions in testing conditions (e.g., temperature); however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on interpretation of the results.
	Metric 7:	Testing Consistency	High	The conditions of the exposure across study groups was reported.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on interpretation of the results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism species and growth information were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and calculations were clearly described and addressed the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5707607

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbon-14-labelled; Radiochemical Centre, Amersham; NR; sp act. 5¿tCi/mg, radiochemical purity 99% Notes: Mixed with varying amounts of inactive DEHP from Fluka AG, Switzerland (purity >99%) before use
Test Organism and Test Organism Details	barley; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 6.4; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Plants grown in desiccators connected with a pump and trapping system for organic volatiles and 14CO2
Nominal Measured and Time Plateau	measured; 3.33 and 1 mg/kg dry soil; Not reported
Duration, Parameter, and Sampling Frequency	446 days; other; Not Reported
Analytical Method and Analytical Details	Liquid scintillation counter Betaszint BF 8000 from Berthold; Not reported;
Results Value, Result Type, and Results Standard Deviation	0.10 and 0.23; BAF; Not Reported
Calculation Basis and Basis	steady state; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing condition reporting but the omissions were not likely to have a substantial impact on study results.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5707607

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Data were not fully reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding statistical methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however no blanks or reference compounds were included in this experiment.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Sun, J., Wu, X., Gan, J. (2015). Uptake and metabolism of phthalate esters by edible plants. Environmental Science & Technology 49(14):8471-8478.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5555815

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Bioconcentration Factor (BCF) values in edible plants
Solvent, Reactivity, Storage, Stability	stock solutions prepared in n-hexane; NR; stored in amber glass vials at −20°C; NR
Radiolabel, Source, State, Purity	NR; AccuStandard (New Haven, CT, USA); internal standard: DEHP-d4 (Pointe-Claire, Quebec, Canada); NR; NR Notes: DEHP
Test Organism and Test Organism Details	Lactuca sativa L.; Seedlings of romaine lettuce (Lactuca sativa L.) and Quinault strawberry (Fragaria x ananassa.) with two to four leaves and seeds of Little Finger carrot (Daucus carota Var. Sativus) were purchased from the Certified Plant Growers (Temecula, CA)
Lipid Content, Test Temperature, pH, and Depuration Time	Not applicable; 26°C (carrot cell suspension); Not reported; Not reported
Moisture, TOC, and Test Conditions Comments	65% relative humidity; Not reported; plants cultivated in sand spiked with target chemical and hydroponic nutrient solution
Nominal Measured and Time Plateau	nominal spiked concentration: 500 μg/kg; Not reported
Duration, Parameter, and Sampling Frequency	28 days; DT50; 0, 2, 24, 48, and 120 h
Analytical Method and Analytical Details	Extraction with hexane/DCM, then centrifuged at 3000 rpm for 30 min. Residual extracted with fresh solvent. GC-MS; LOD: calculated as 3x the signal-to-noise level from the low-level spiked samples; surrogate recoveries ranged from 75-110%; Only small concentrations of DEHP was found in nonspiked controls (<5%).;
Results Value, Result Type, and Results Standard Deviation	Lettuce leaf 1.31±0.41; strawberry leaf 1.38±0.19; carrot leaf 2.42±0.46; lettuce root 1.75±0.45; strawberry root 1.95±0.41; carrot root 2.74±0.19; BCF; Not Reported
Calculation Basis and Basis	Not Reported; edible and non-edible plant biomass
Elimination, Metabolites, Kinetic Parameter, and Statistics	transformation in a carrot cell suspension followed second-order kinetics with a reaction rate constant k = 4E-8 /ng·h corresponding to a half-life of 5000h; apparent dissipation observed in all groups, including spiked planted samples and unplanted controls; DEHP decreased by 42.1-56.8% in planted media, concentrations remaining in controls suggested some degradation may have also occurred in these systems; Not reported; transformation; Origin Pro (v.8.0; OriginLab, Northampton, MA); one-way ANOVA: significance level 0.05

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Medium	The analytical standard source was reported, purity was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Procedural (or method) blanks and sample duplicate were run with every 10 monitoring samples. No plasticware was used.
	Metric 4:	Test Substance Stability	High	The test substance/sample preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited test conditions were disclosed but may be reported in supplemental information.

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Study Citation:	Sun, J., Wu, X., Gan, J. (2015). Uptake and metabolism of phthalate esters by edible plants. Environmental Science & Technology 49(14):8471-8478.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5555815

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across the study groups
	Metric 8:	System Type and Design	High	Equilibrium is assumed in this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organisms were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited details were provided on the derivation of the bioconcentration factors. Media concentrations were reported in supplemental info.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Authors indicated enhanced dissipation likely due to plant uptake and plant-facilitated microbial degradation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail; however, SI may provide data.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistic methods were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sun, J., Wu, X., Gan, J. J. (2015). Uptake and metabolism of phthalate esters by edible plants [Supplemental material].
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5353243

EXTRACTION

Parameter	Data
CASRN and Test Material	NR; Di(2-ethylhexyl) Phthalate
Confidentiality, EndPoint, Type, Guideline	None; Biomonitoring data; Experimental; other: Biomonitoring samples
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	NR; Lettuce root and leaf, strawberry root and leaf and Carrot root, leaf and stem
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Moisture, TOC, and Test Conditions Comments	NR; NR; NR
Nominal Measured and Time Plateau	NR; NR
Duration, Parameter, and Sampling Frequency	NR; NR; NR
Analytical Method and Analytical Details	Agilent 6890GC-5973 gas chromatograph-mass selective detector (GC-MSD) and a 30 m × 0.25 mm × 0.25 μm DB- 5MS capillary column (J&W Scientific, Folsom, CA) in the electron impact and selective ion monitoring (SIM) mode and Waters ACQUITY ultra-performance liquid chromatography (UPLC) in combination with a Waters Micromass electrospray ionization tandem mass spectrometer (ESI-MS/MS); Not Reported;
Results Value, Result Type, and Results Standard Deviation	Not Reported; DEHP BCF = 1.31 ± 0.41 (lettuce leaf), 1.38 ± 0.19 (strawberry leaf), 2.42 ± 0.46 (carrot leaf), 1.75 ± 0.45 (lettuce root), 1.95 ± 0.41 (strawberry root), and 2.74 ± 0.19 (carrot root).; NR
Calculation Basis and Basis	The bioconcentration factor (BCF) value was calculated as the ratio of the target compound in the plant tissue to the spiked concentration in the growth medium.; NR
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; MEHP uptake (ng/g): Lettuce root 370.3 ± 146.1 lettuce leaf 422.4 ± 116.7 Strawberry root 479.3 ± 57.0 Strawberry leaf 487 ± 16.8 carrot root 701.3 ± 54.0 5 carrot leaf/stem 02.2 ± 81.6 And MEHP produced ng/g): Lettuce root 173 ± 49.0 lettuce leaf 329.7 ± 78.7 Strawberry root 79.1 ± 17.1 Strawberry leaf 220.4 ± 13.9 carrot root 217.5 ± 23.6 carrot leaf/stem 236.3 ± 14.3; DEHP uptake (ng/g): Lettuce root 653.8 ± 205.8 lettuce leaf 872.5 ± 224.9 Strawberry root 689.1 ± 97.0 Strawberry leaf 976.3 ± 205.8 carrot root 1209.1 ± 230.4 carrot leaf/stem 1371.4 ± 92.9; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Control group details were not included; however, the lack of data was not likely to have a substantial impact on study results and may be available in the full study report.
	Metric 4:	Test Substance Stability	Medium	Test substance stability and preparation were not reported and data provided were insufficient to interpret results more information available in the full study report.

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Study Citation:	Sun, J., Wu, X., Gan, J. J. (2015). Uptake and metabolism of phthalate esters by edible plants [Supplemental material].
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	5353243

Domain	Metric		Rating	Comments
		EVALUATION		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	Testing conditions were not reported and data provided were insufficient to interpret results more information available in the full study report.
	Metric 7:	Testing Consistency	N/A	Testing consistency were not reported and data provided were insufficient to interpret results more information available in the full study report.
	Metric 8:	System Type and Design	N/A	System type and design was not reported and data provided were insufficient to interpret results more information available in the full study report.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported.
	Metric 10:	Sampling Methods	High	The test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology addressed or reported the metabolism of the target chemical but not the partitioning or bioaccumulation.
	Metric 12:	Test Substance Purity	N/A	Sampling details were not reported; more information available in the full study report.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

* Related References: This file is supplementary information for HERO ID 5555815.

Study Citation:	Teil, M. J., Tlili, K., Blanchard, M., Labadie, P., Alliot, F., Chevreuil, M. (2014). Polychlorinated biphenyls, polybrominated diphenyl ethers, and phthalates in roach from the Seine River Basin (France): Impact of densely urbanized areas. Archives of Environmental Contamination and Toxicology 66(1):41-57.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2149497

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Bioaccumulation based on concentrations of contaminants in roaches, waters and sediments in the Seine River and Orge River
Solvent, Reactivity, Storage, Stability	Isooctane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Supelco (via Sigma-Aldrich, St. Quentin Fallavier, France); Solution of 6 standards in isooctane; DMP, DEP, DnBP, BBP, DEHP, DnOP; NR Notes: DEHP
Test Organism and Test Organism Details	other; Rutilus rutilus (Cyprinidae; roach)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; BAF based on environmental monitoring
Nominal Measured and Time Plateau	Measured; Not reported
Duration, Parameter, and Sampling Frequency	Not reported; other; Not reported
Analytical Method and Analytical Details	GC-MS; detected in blanks: DnBP ($\leq$11 ng), BBP ($\leq$52 ng), DEHP ($\leq$10 ng);
Results Value, Result Type, and Results Standard Deviation	not able to evaluate BAF from data reported in Fig 4; numerical value in graph is not precise, greater than zero and much less than 50,000; BAF; Not Reported
Calculation Basis and Basis	other; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The test substance source was reported; purity was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Controls were not included in this study.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Not a standard BAF method; this study was a monitoring investigation.
Metric 6:	Testing Conditions	N/A	This metric is not applicable to this type of study.
Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.

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Study Citation:	Teil, M. J., Tlili, K., Blanchard, M., Labadie, P., Alliot, F., Chevreuil, M. (2014). Polychlorinated biphenyls, polybrominated diphenyl ethers, and phthalates in roach from the Seine River Basin (France): Impact of densely urbanized areas. Archives of Environmental Contamination and Toxicology 66(1):41-57.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	2149497

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	This metric is not applicable to this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical and analytical extraction efficiency and LOD were not reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods reported were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Quantitative results are not explicit.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Wang, A. (2014). Effect of spiked phthalic acid esters on dissipation efficiency of Potamogeton crispus L. in the rhizosphere of surface sediments from the Haihe River, China. Journal of Soils and Sediments 14(1):243-250.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3110319

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Dissipation of DEHP in rhizosphere and non-rhizosphere of Potamogeton crispus L. (P. crispus) using a microcosm with river sediment; uptake and accumulation of phthalic acid esters by plantfrom sediments
Solvent, Reactivity, Storage, Stability	Acetone (dried before experiment); NR; NR; NR
Radiolabel, Source, State, Purity	No; NR; NR; NR Notes: DEHP
Test Organism and Test Organism Details	other; Potamogeton crispus L.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; sediment pH = 7.5; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; sediment organic carbon 2.41%; Spiked and non-spiked (control) sediments
Nominal Measured and Time Plateau	Measured; Not reported
Duration, Parameter, and Sampling Frequency	17 days; other; Sediments and plants were sampled after 17 days
Analytical Method and Analytical Details	GC-MS; GC equipped with an Agilent 5975 MS detector and a HP-5 MS capillary column coated with 0.25 μm of film 5% phenyl methyl siloxane; LOD: 10 ng/g (sediment samples), 20 ng/g (plant samples); recovery: 95.0% (sediment), 92.8% (plants);
Results Value, Result Type, and Results Standard Deviation	root bioconcentration RCF: 6.67±0.6 (control; lower conc in found sediment) 0.07±0.003 (spiked; higher conc found in sediment); stems and leaves bioconcentration SCF: 2.55±0.5 (control; lower conc in sed) 0.03±0.002 (spiked; higher conc found in sediment); Not Reported; Not Reported
Calculation Basis and Basis	other; not specified
Elimination, Metabolites, Kinetic Parameter, and Statistics	Notes: plant roots were damaged in spiked system; DEHP adsorption to sediment due to its lipophilic nature; Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate control groups included for this type of study.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation and storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Limited details on testing conditions were reported.

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Study Citation:	Wang, A. (2014). Effect of spiked phthalic acid esters on dissipation efficiency of Potamogeton crispus L. in the rhizosphere of surface sediments from the Haihe River, China. Journal of Soils and Sediments 14(1):243-250.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	3110319

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	The test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test species was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Other loss processes; biotic/abiotic were addressed with limited detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	This metric met the criteria for medium confidence as expected for this type of study; analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Wang, A., Chi, J.,ie (2012). Phthalic acid esters in the rhizosphere sediments of emergent plants from two shallow lakes. Journal of Soils and Sediments 12(7 (Aug 2012)):1189.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1450450

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Field study Qingnian Lake and Aiwan Lake in Tainjin, China
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	other; P. australis and Typha orientalis; root systems collected
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; Not reported; Sediment and root samples collected; Root bioconcentration factor (RBF) is calculated as the ratio of lipid-normalized PAE concentration in plant roots to the TOC-normalized PAE concentration in the rhizosphere sediments
Nominal Measured and Time Plateau	measured; Not reported
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; roots sampled on May 18, 2010
Analytical Method and Analytical Details	GC-MS; MDL = 20 ng/g; average recovery = 95.0% in sediments, 104.1% in roots;
Results Value, Result Type, and Results Standard Deviation	8.05 to 17.01; RBF; Not Reported
Calculation Basis and Basis	Not Reported; Not Reported
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not reported; Not reported; Not reported; Data compared using analysis of variance, comparisons of means carried out using Duncan's test; significance value $p<0.05$. All analyses performed using SPSS 13.0 for Windows

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The analytical standard source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included.
	Metric 4:	Test Substance Stability	High	The field sample preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in sample site conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this study type.

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Study Citation:	Wang, A., Chi, J.,ie (2012). Phthalic acid esters in the rhizosphere sediments of emergent plants from two shallow lakes. Journal of Soils and Sediments 12(7 (Aug 2012)):1189.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1450450

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium is assumed in a monitoring study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Limited detail reported for test organisms.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty not identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency and percent recovery were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Adams, W. J., Williams, M. D., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1994). Sediment adsorption properties of four phthalate esters.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335637

EXTRACTION

Parameter	Data
CASRN and Test Material	NR; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.2750 (Sediment and Soil Adsorption Isotherm)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	other; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	EPA 8, EPA 18 and EPA 21; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NR; NR; NR; NR
Partition Coefficient Type and Partition Coefficient Results	NR; NR
Partition Coefficient Phase and Partition Coefficient Results	NR; NR
Mass Balance	NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	No details reported in the study report (abstract).
Metric 4:	Test Substance Stability	N/A	No details reported in the study report (abstract).
Domain 3: Test Conditions			

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Study Citation:	Adams, W. J., Williams, M. D., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1994). Sediment adsorption properties of four phthalate esters.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335637

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	No details reported in the study report (abstract).
	Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results.
	Metric 7:	Testing Consistency	N/A	No details reported in the study report (abstract).
	Metric 8:	System Type and Design	N/A	No details reported in the study report (abstract).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	There was incomplete reporting of outcome assessment methods.
	Metric 12:	Test Substance Purity	Low	No details reported in the study report (abstract).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	No details reported in the study report (abstract).
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	No quantitative data reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No quantitative data reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Analytical Bio-Chemistry Labs, (1991). Sediment adsorption of isotherm of 14C-ditridecyl phthalate, 14c-diisodecyl phthalate, 14C-di(2-ethyl hexyl) phthalate and 14C-dihexyl phthalate (final reports) w-cover letter 080591.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335673

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sediment adsorption isotherm of DEHP
Solvent, Reactivity, Storage, Stability	Acetone; NR; Stored in refrigerator when not in use (0-5°C); NR
Radiolabel, Source, State, Purity	14-C ring labeled, 4mCi, specific activity = 25.9 mCi/mmol.; Eastman Kodak Company; Liquid; Radiochemical purity of the 14-C stock solution was 97.8%.
Sampling Frequency, Sampling Details, and Number of Replicates	7 day equilibration phase; Samples were shaken in darkness for the 7 day equilibration period.; 3
pH, Test Temperature, Buffer, and Test Details	7; 25±1°C; 0.01 M Ca(NO3)2; Triplicate 1.0-2.0mL aliquots of decanted supernatant were taken for analysis. Blank controls were prepared to measured glass adsorption.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; EPA 8: 10.7/6.8/82.4/0.15; EPA 18: 25.8/39.5/34.6/0.66; EPA 21: 42.7/7.1/50.2/1.88; (meq/100 g) EPA 8: 3.72; EPA 18: 15.43; EPA 21: 8.33
Bulk Density and Matrix Details	Not reported; Nominal concentrations tested (µg/mL): 0.17, 0.12, 0.09, 0.05, 0.03, 0.007 ppm.
Media, Recovery, and Statistics	50 mL of test solution (0.01 M Ca(NO3)2 with DIDP) were added to 1.000g of EPA 8 or 0.100g of EPA 18 and EPA 21 sediment.; HPLC recovery: 96.9%; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; EPA 8: 70.2%; EPA 18: 90.6%; EPA 21: 92.0%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Kd: EPA 8: 4.52x10^2; EPA 18: 5.86x10^3; EPA 21: 4.83x10^3
Partition Coefficient Type and Partition Coefficient Results	Koc; EPA 8: 3.01x10^5; EPA 18: 8.88x10^5; EPA 21: 2.57x10^5
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used to measure adsorption to the glassware.

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Study Citation:	Analytical Bio-Chemistry Labs, (1991). Sediment adsorption of isotherm of 14C-ditridecyl phthalate, 14c-diisodecyl phthalate, 14C-di(2-ethyl hexyl) phthalate and 14C-dihexyl phthalate (final reports) w-cover letter 080591.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335673

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance storage, preparation, homogeneity, and stability were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	There were no reported difference between the sample groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining the test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final study results but the omissions are unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting and analytical methods were appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable based on the chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Asakura, H., Matsuto, T., Tanaka, N. (2007). Analytical study of endocrine-disrupting chemicals in leachate treatment process of municipal solid waste (MSW) landfill sites. Environmental Sciences 14(2):79-87.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	698293

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	none; Field study; other: Partitioning between leachate and suspended sediment in leachate treatment facilities of municipal solid waste landfills
Solvent, Reactivity, Storage, Stability	extracted with hexane; NR; sealed brown glass bottles; bottled prewashed 2x with acetone and dichloromethane; NR
Radiolabel, Source, State, Purity	NA; 5 facilities treating leachate form municipal solid waste landfills; Liquid; NA Notes: source and purity of analytical standards not reported
Sampling Frequency, Sampling Details, and Number of Replicates	4 times, 4 times, 1 time, 1 time, and 1 time per facility respectively; Sequential first aeration treatment (sites 1-5), biological treatment (sites 2-5), coagulation and sedimentation (sites 1-5) and activated carbon adsorp (site 4); Not reported
pH, Test Temperature, Buffer, and Test Details	7.9 - 8.3, 6.8 - 7.8, 6.6 - 7.1, 6.8 - 7.5, and 7.8 - 8.5 per site respectively; 15 - 20, 22 -23, 18 - 19, 16 - 18, and 15°C per site respectively; Not reported; Measured leachate and suspended sediment concentrations
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; TOC: 385 - 436, 77 - 165, 89 - 110, 20 - 90, 33 - 36 mg C/L per site respectively; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	suspended sediment in landfill leachate; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	log Kp = 4.6 (ratio of suspended sediment to the filtrate); Influent (median): 18 ug/L1st aeration (median): 12 ug/Lbiological treatment (median): 16 ug/LCS treatment (median): 11 ug/LACA treatment (median): 12 ug/L
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Median value
Mass Balance	Concentration in suspended sediment not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	A general description of the test substance source was provided, and purity is not an applicable metric for field studies; the source and purity of analytical standards was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require negative controls.

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Study Citation:	Asakura, H., Matsuto, T., Tanaka, N. (2007). Analytical study of endocrine-disrupting chemicals in leachate treatment process of municipal solid waste (MSW) landfill sites. Environmental Sciences 14(2):79-87.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	698293

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Sample characteristics were analyzed and reported and were appropriate for the study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across sample groups.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used sampling methods that are acceptable and address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Reported sources of variability were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Target chemical concentrations and mass balance were reported; extraction efficiency was not reported but is not expected to have a significant impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods applied to the datasets were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Bauer, M. J., Herrmann, R. (1998). Dissolved organic carbon as the main carrier of phthalic acid esters in municipal landfill leachates. Waste Management & Research 16(5):446-454.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333362

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, Guideline	None; experimental; other
Solvent, Reactivity, Storage, Stability	methanol; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]-DEHP; Fluka; not reported; Not Reported Notes: 358.9 MBq/mmol; 320 Bq/ul
Sampling Frequency, Sampling Details, and Number of Replicates	Not Reported; landfill leachates; disposal years 1954-1994; Bavaria, Germany; Not Reported
pH, Test Temperature, Buffer, and Test Details	sampling pH 7.1-9.0; not applicable (field samples); not applicable (field samples); Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	other; suspended solids 3.6-691.9 mg/L; not applicable (field samples)
Bulk Density and Matrix Details	not applicable (field samples); DOC 33-1626 mg/L
Media, Recovery, and Statistics	Not Reported; not reported; Not Reported
Transformation Products, Equilibrium	not reported; field samples assumed to be in equilibrium; field samples assumed to be in equilibrium
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	not applicable (field samples); not applicable (field samples); Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Dissolved phase DEHP concentration 0.6-235.9 ug/L; suspended solids DEHP concentrations 0.4-167.6 ug/g.
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; 46-99% of DEHP (of phthalic acid esters) was found in the solution phase of 26 municipal landfill leachates.
Mass Balance	not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Bauer, M. J., Herrmann, R. (1998). Dissolved organic carbon as the main carrier of phthalic acid esters in municipal landfill leachates. Waste Management & Research 16(5):446-454.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333362

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
Metric 6:	Testing Conditions	Low	Site specific, not all conditions were reported.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
Metric 12:	Test Substance Purity	Low	Details regarding sampling methods were not fully reported.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Low	There was insufficient data reported.
Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Chen, H., Mao, W., Shen, Y., Feng, W., Mao, G., Zhao, T., Yang, L., Yang, L., Meng, C., Li, Y., Wu, X. (2019). Distribution, source, and environmental risk assessment of phthalate esters (PAEs) in water, suspended particulate matter, and sediment of a typical Yangtze River Delta City, China. Environmental Science and Pollution Research 26(24):24609-24619.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5635050

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: partition coefficients (Kd) based on water, suspended particulate matter (SPM) and sediment samples from 15 locations in the Yunliang River, Ancient Canal, Beijing-Hangzhou Grand Canal of Zhenjiang
Solvent, Reactivity, Storage, Stability	NR; NR; stored away from light at 4°C; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (USA); NR; >98% Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	Not applicable; water, SPM, and sediment samples collected in June 2017 (wet season) and January 2018 (dry season); 15 samples each
pH, Test Temperature, Buffer, and Test Details	reported in SI; annual mean temp of location = 15.5C (subtropical monsoon climate); Not reported; monitoring of natural water, SPM, and sediment
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; reported in SI
Bulk Density and Matrix Details	Not reported; natural sediment and SPM
Media, Recovery, and Statistics	natural water; Recoveries for all PAEs tested ranged from 81.7±9.2 to 111.9±6.8% for the spiked water samples, ranged from 85.6±5.1 to 102.3±9.7% for spiked SPM samples, and ranged from 80.5±7.8 to 107.6±10.3% for spiked sediment samples; OriginPro 9.0 software and SPSS 16.0 for data analysis; Independent t-tests $p \leq 0.05$
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Kd1: partition coefficient SPM:water; Kd2: partition coefficient sediment:water; Kd1 = 1.65 L/g, Kd2 = 1.40 L/g (average wet season); Kd1 = 2.73 L/g, Kd2 = 1.78 L/g (average dry season); Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Not reported; Not reported
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; sediment-water
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.

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Study Citation:	Chen, H., Mao, W., Shen, Y., Feng, W., Mao, G., Zhao, T., Yang, L., Yang, L., Meng, C., Li, Y., Wu, X. (2019). Distribution, source, and environmental risk assessment of phthalate esters (PAEs) in water, suspended particulate matter, and sediment of a typical Yangtze River Delta City, China. Environmental Science and Pollution Research 26(24):24609-24619.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5635050

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Limited details; additional information may be found in SI
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Adequate data reporting.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Methods were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Fromme, H., Kuchler, T., Otto, T., Pilz, K., Muller, J., Wenzel, A. (2002). Occurrence of phthalates and bisphenol A and F in the environment. Water Research 36(6):1429-1438.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	679518

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, Type, Guideline	None; experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	ring-d4; Cambridge Isotope Laboratories; NR; 98%
Sampling Frequency, Sampling Details, and Number of Replicates	1997 from various rivers, lakes and channels in Germany (North Rhineâ€“Westphalia, Rheinlandâ€“ Pfalz, Brandenburg and Berlin); samples, collected in 2.5L brown glass bottles were preserved with 0.5 gL1 sodium azide to prevent microbial degradation of the analytes and either assayed immediately or first stored in the dark at 4 deg C.; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not applicable (field study); Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	other; Not applicable (field study); Not reported
Bulk Density and Matrix Details	Not reported; Not Reported
Media, Recovery, and Statistics	Not Reported; 105.6-110.2% water; 71.3-89.1% sediment; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Kd = sediment concentration/water concentration; average Kd = 308 L/kg (calculated by the reviewer from median concentrations)
Partition Coefficient Phase and Partition Coefficient Results	sediment/water; Surface water concentrations 0.33-97.8 µg/L (median: 2.27 µg/L; 0.00227 mg/L); sediment concentrations 0.21-8.44 mg/kg dry weight (median: 0.70 mg/kg dry weight)
Mass Balance	Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The stability of the test substance in the environment was not tested, but this was unlikely to have affected the results.

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Study Citation:	Fromme, H., Kuchler, T., Otto, T., Pilz, K., Muller, J., Wenzel, A. (2002). Occurrence of phthalates and bisphenol A and F in the environment. Water Research 36(6):1429-1438.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	679518

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some sediment and water characteristics were not reported: pH, CEC, sediment type, and temperature.
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Results were not broken down into coordinating locations.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient data reported for sample sites.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	He, F., Song, H., Cheng, S., Liang, W.,ei, Wu, Z. (2008). Distribution of 25 semi-volatile organic compounds of two urban lakes in Wuhan, China. Fresenius Environmental Bulletin 17(1):20-26.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1597996

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; distribution of selected pollutants between water and suspended particulate matter (SPM) in lakes
Solvent, Reactivity, Storage, Stability	NA; NR; Samples stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Yuehu Lake and Moshuihu Lake, China; NA; NA Notes: Analytical standards obtained as a mixture from Supelco.
Sampling Frequency, Sampling Details, and Number of Replicates	April 2006; 4L surface water collected with cylinder samplers, SPM filtered on glass fiber filters and retained for analysis; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Concentrated at 25°C then freeze-dried; NA; Water and SPM samples collected from 8 sites in the Yuehu Lake (residential area) and 4 sites in the Moshuihu Lake (previously an industrial and agricultural complex area)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Filtered suspended particulate matter from lake water
Media, Recovery, and Statistics	Surface lake water; 67-102% (water), 72-97% (SPM); Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; NA, field study; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Kd = [SPM]/[water] (not reported by study authors. Calculated by the reviewer.); Kd = 19.35 L/g (Yuehu Lake), 23.97 L/g (Moshuihu Lake)
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Mean Yuehu Lake water: 395.3±81.5 ng/L; Mean Moshuihu Lake water: 408.4±148.7 ng/LMean Yuehu Lake SPM: 7649.1±6196.3 ng/g d.w.; Mean Moshuihu Lake SPM: 9788.2±3468.5 ng/g d.w.
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The chemical of interest was reported.
	Metric 2:	Test Substance Purity	High	The sample source was reported; the analytical standard source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Field or analytical blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage was reported.

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Study Citation:	He, F., Song, H., Cheng, S., Liang, W.,ei, Wu, Z. (2008). Distribution of 25 semi-volatile organic compounds of two urban lakes in Wuhan, China. Fresenius Environmental Bulletin 17(1):20-26.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1597996

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the chemical of interest.
	Metric 6:	Testing Conditions	Medium	No environmental conditions or sample characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partition coefficients between water and SPM.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate, sampling frequency was not reported but multiple sites per lake were sampled.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study does not report sediment or water characteristics (pH, organic matter content), which limits the usefulness of the partition coefficient as it cannot be normalized to organic carbon.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; recovery and limits of detection were reported. Partition coefficients were calculated by the reviewer but raw data was reported in the study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method and the coefficients were comparable between lakes, however the value could not be normalized to organic carbon and cannot reliably be applied to other environments.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	HEW, (2019). The occurrence, composition and partitioning of phthalate esters (PAEs) in the water-suspended particulate matter (SPM) system of Lake Chaohu, China. Science of the Total Environment 661:285-293.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5433399

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Seasonal organic-carbon normalized partition coefficients of DEHP in water-SPM system.
Solvent, Reactivity, Storage, Stability	NR; NR; Hexane and Acetone working standards; NR
Radiolabel, Source, State, Purity	NR; Field samples. Standards were obtained from AccuStandard Inc., New Haven, Connecticut.; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Water samples collected at 20 sites in Lake Chaohu, China, in summer, autumn, and winter.; 10 sites in lake, 10 sites in lake estuaries. Water depth was >1m in all samples except for 6 of the winter estuary samples. Samples; Composite samples at each site were collected from 3 depths (surface, intermediate, and bottom water).
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; None; 2L of water was filtered through GFF to collected suspended particulate matter.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not Reported; Water: 74.3-102.%; SPM: 70.6-105.6%.; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Log Koc (Mean±SD); Summer: 4.00±0.53; Autumn: 4.28±0.86; Winter: 3.75±0.44.
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Koc = [(Conc. In SPM)/(Conc. In water)]/(% Particulate organic carbon)
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was measured in field samples using appropriate analytical techniques.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls in the analytical method were used.

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Study Citation:	HEW, (2019). The occurrence, composition and partitioning of phthalate esters (PAEs) in the water-suspended particulate matter (SPM) system of Lake Chaohu, China. Science of the Total Environment 661:285-293.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5433399

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The preparation of the samples containing the test substance was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Testing conditions were not reported at each sampling site; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not assumed, prevented by factors such as degradation, biological uptake, allogenic input, and internal PAE release. However, this does not make the study unusable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the partition coefficients was reported and unlikely to have a substantial impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and the analytical method was suitable for detection and quantification of the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

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Study Citation:	HEW, (2019). The occurrence, composition and partitioning of phthalate esters (PAEs) in the water-suspended particulate matter (SPM) system of Lake Chaohu, China. Science of the Total Environment 661:285-293.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5433399

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: sorption isotherm determination via the batch equilibrium procedure
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; 99%
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 0-15 cm surface sediment samples collected from Fong-Shan River in Taiwan using Ekman grab sampler; 3
pH, Test Temperature, Buffer, and Test Details	7.8; 25°C; Not reported; 5g sediment; 25 mL of various concentrated solutions ($\leq$ 2.0 mg/L) test substance
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 71% sand; 21% silt; 8% clay; 14.8 g/kg organic matter; 15.3 cmol/kg
Bulk Density and Matrix Details	Not reported; $<$ 2 mm sediment size
Media, Recovery, and Statistics	Native sediment and test substance solution; 105%; $\pm$2.3%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not reported; desorption: $<$ 4% of adsorbed / 30 d
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 4.44
Partition Coefficient Type and Partition Coefficient Results	nonlinear Freundlich model; R^2 = 0.90
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The purity and source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	A negative control was not required.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Sediment type, location, particle size, background organic matter content, CEC, and pH were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used Ekman grab samplers to collect sediment samples and GC-MS for analysis.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The extraction efficiency and detection limit was reported, the analytical methods were appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: sorption isotherm determination via the batch equilibrium procedure
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; 99%
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 0-15 cm surface sediment samples collected from Ah-Kung-Dian River in Taiwan using Ekman grab sampler; 3
pH, Test Temperature, Buffer, and Test Details	7.8; 25°C; Not reported; 5g sediment; 25 mL of various concentrated solutions ($\leq$ 2.0 mg/L) test substance
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 84% sand; 5% silt; 8% clay; 25.3 g/kg organic matter; 9.13 cmol/kg
Bulk Density and Matrix Details	Not reported; $<$ 2 mm sediment size
Media, Recovery, and Statistics	Native sediment and test substance solution; 105%; $\pm$2.3%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not reported; desorption: $<$ 4% of adsorbed / 30 d
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 5.48
Partition Coefficient Type and Partition Coefficient Results	nonlinear Freundlich model; R^2 = 0.98
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The purity and source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	A negative control was not required.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable.

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Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Sediment type, location, particle size, background organic matter content, CEC, and pH were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used Ekman grab samplers to collect sediment samples and GC-MS for analysis.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The extraction efficiency and detection limit was reported, the analytical methods were appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: sorption isotherm determination via the batch equilibrium procedure
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Company; NR; 99%
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 0-15 cm surface sediment samples collected from Dian-Bao River in Taiwan using Ekman grab sampler; 3
pH, Test Temperature, Buffer, and Test Details	7.7; 25°C; Not reported; 5g sediment; 25 mL of various concentrated solutions ($\leq$ 2.0 mg/L) test substance
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 85% sand; 9% silt; 6% clay; 5.20 g/kg organic matter; 7.60 cmol/kg
Bulk Density and Matrix Details	Not reported; $<$ 2 mm sediment size
Media, Recovery, and Statistics	Native sediment and test substance solution; 105%; $\pm$2.3%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not reported; desorption: $<$ 4% of adsorbed / 30 d
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 1.24
Partition Coefficient Type and Partition Coefficient Results	nonlinear Freundlich model; R^2 = 0.91
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The purity and source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	A negative control was not required.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable.

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Study Citation:	Kao, P. H., Lee, F. Y., Hseu, Z. Y. (2005). Sorption and biodegradation of phthalic acid esters in freshwater sediments. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 40(1):103-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	681974

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Sediment type, location, particle size, background organic matter content, CEC, and pH were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used Ekman grab samplers to collect sediment samples and GC-MS for analysis.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The extraction efficiency and detection limit was reported, the analytical methods were appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Li, R., Liang, J., Duan, H., Gong, Z. (2017). Spatial distribution and seasonal variation of phthalate esters in the Jiulong River estuary, Southeast China. Marine Pollution Bulletin 122(1-2):38-46.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3859571

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; field study
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples stored in 10 L brown glass jar at 4°C; suspended particulate matter stored in aluminum pots at 4 °C; sediment stored in brown glass jar at 4 °C.; NR
Radiolabel, Source, State, Purity	NA; Environmental samples from the Jiulong River estuary; NA; NA
Sampling Frequency, Sampling Details, and Number of Replicates	August 2014 (wet season), April 2014 (normal season), dry season (January 2015); Samples collected from 15 sites along the salinity gradient in the Jiulong River estuary; Water samples 0 - 20 cm collected by stainless steel barrel, suspended particulate matter filtered through glass fibers; sediment 0 - 10 cm grab samples; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Field study
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Estuary suspended particulate matter
Media, Recovery, and Statistics	Estuary water; Standard addition recovery: 77.1 - 101.9% (water), 90.3 - 101.4% (suspended particulate), 87.0 - 101.7% (sediment)Surrogate standard recoveries: 79.2±9.8% (water), 80.5±12.8% (suspended particulate), 102.4±5.9% (sediment); Log K for sediment-water or suspended particulate-water partitioning had no significant relationship to alkyl chain length or log Kow of the studied PAEs
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; NA; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Analytical blank; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	suspended particulate matter/water; 1920, 2700, 2070 L/kg
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Calculated for wet, normal, and dry seasonsWater (wet, normal, dry): 3.66, 0.57, 3.99 ug/LSuspended particulate (wet, normal, dry): 7.02, 1.54, 8.27 mg/kgSediment (wet, normal, dry): 93.6, 23.9, 77.5 ug/kg
Mass Balance	NA

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			

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Study Citation:	Li, R., Liang, J., Duan, H., Gong, Z. (2017). Spatial distribution and seasonal variation of phthalate esters in the Jiulong River estuary, Southeast China. Marine Pollution Bulletin 122(1-2):38-46.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3859571

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Analytical blanks were included, the results were assumed to be with in an acceptable range.
	Metric 4:	Test Substance Stability	Medium	Sample storage conditions were reported, sample preparation was reported elsewhere or in supplemental information.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions or characteristics of the samples were reported.
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling methods addressed seasonal variability but the number of replicates per site was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was addressed between sites and seasons.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, extraction efficiency and limits of detection were reported,
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Partition coefficient calculations were described and conducted appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method, however broader trends cannot be determined without reported sample characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Li, R., Liang, J., Gong, Z., Zhang, N., Duan, H. (2017). Occurrence, spatial distribution, historical trend and ecological risk of phthalate esters in the Jiulong River, Southeast China. Science of the Total Environment 580(Elsevier):388-397.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3483279

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NA; NR; Water filtered, stored at 4°C; sediment stored in brown glass jar at 4°C; NR
Radiolabel, Source, State, Purity	NA; 35 stations; 15 from the North River, 4 from the West River, 6 from its estuary, Jiulong River Basin, China; NA; NA Notes: Standard solution: mixture of 16 PAEs at 1000 mg/L in n-hexane obtained from Dr. Ehrenstorfer, Gmbh, Augsburg, Germany
Sampling Frequency, Sampling Details, and Number of Replicates	March 2014; 0-20 cm surface layer of water and 0-10 cm surface layer sediment; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; NA; Monitoring study conducted at 35 sites in the Jiulong River Basin (North and West Rivers, and its estuary), China
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Natural fluvial and estuarine sediment
Media, Recovery, and Statistics	Natural fluvial and estuarine river; 77.1 - 101.9% (water), 87.0 - 101.7% (sediment); Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Method blank; < 0.13 ug/L (water), < 0.045 mg/kg (sediment); Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	sediment/water partitioning; 216.42 (North River), 201.15 (West River), 21.68 (estuary) L/kg
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Average water concentrations: 1.34 (North River), 1.74 (West River), and 3.69 (estuary) ug/LAverage sediment: 0.29 (North River), 0.35 (West River), and 0.080 (estuary) mg/kg
Mass Balance	NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported; the analytical standard source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Method blanks were included and results were within an acceptable range.
	Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported and appropriate for the study.

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Study Citation:	Li, R., Liang, J., Gong, Z., Zhang, N., Duan, H. (2017). Occurrence, spatial distribution, historical trend and ecological risk of phthalate esters in the Jiulong River, Southeast China. Science of the Total Environment 580(Elsevier):388-397.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3483279

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No sample characteristics for water or sediments were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Samples were collected from each site only once, however 35 sites were samples which is appropriate for a monitoring study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Trends in spatial distribution of the pollutants were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Averages and ranges of the data were reported, recovery of surrogates was reported, limits of quantification were reported, the analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were comparable to previous studies and seem reasonable however without characteristics of the samples, little information on overall trends can be derived from them.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Li, T., Yin, P., Zhao, L., Wang, G., Yu, Q. J., Li, H., Duan, S. (2015). Spatial-temporal distribution of phthalate esters from riverine outlets of Pearl River Delta in China. Water Science and Technology 71(2):183-190.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2816369

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; experimental; other: field study
Solvent, Reactivity, Storage, Stability	isooctane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Dr Ehrenstorfer GmbH (Germany); standard solution containing DMP, DEP, DBP, BBP, DEHP, DnOP; 1000 mg/L Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	January (dry season) and April (wet season) 2013; Water and sediment samples were collected at seven riverine outlets of the Pearl River Delta; 3
pH, Test Temperature, Buffer, and Test Details	not applicable; not applicable; not applicable; Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	other; not reported; not reported
Bulk Density and Matrix Details	not reported; natural water-natural sediment
Media, Recovery, and Statistics	not applicable; recovery 76.3-106%, RSD 10.7% (all chemicals); not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not applicable; not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	surrogate standard solution DiPhenP, DPhenP and DBenzP; all surrogate recoveries were within acceptable limits; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; not reported
Partition Coefficient Type and Partition Coefficient Results	sediment/water; using mean measured values; wet season: 0.32; dry season 2.28; overall 0.58
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Calculated by [sediment]/[water]
Mass Balance	Wet season: 1.08-8.84 ug/L, mean 3.61 ug/L (water); 0.47-2.72 ug/g, mean 1.15 ug/g (sediment); Dry season: 0.15-1.36 ug/L, mean 0.57 ug/L (water); 0.81-2.11 ug/g, mean 1.30 ug/g (sediment); overall: 0.15-8.84 ug/L, mean 2.09 ug/L (water); 0.47-2.72 ug/g, mean 1.22 ug/g (sediment)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.

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Study Citation:	Li, T., Yin, P., Zhao, L., Wang, G., Yu, Q. J., Li, H., Duan, S. (2015). Spatial-temporal distribution of phthalate esters from riverine outlets of Pearl River Delta in China. Water Science and Technology 71(2):183-190.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2816369

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some sediment parameters (CEC) were omitted; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results..
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	The study is a field study, which is assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty between replicates was accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations were reported, analytical methods were suitable for detection and limits of detection were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods used were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Li, T., Yin, P., Zhao, L., Wang, G., Yu, Q. J., Li, H., Duan, S. (2015). Spatial-temporal distribution of phthalate esters from riverine outlets of Pearl River Delta in China. Water Science and Technology 71(2):183-190.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2816369

EVALUATION

Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Li, X., Yin, P., Zhao, L. (2016). Phthalate esters in water and surface sediments of the Pearl River Estuary: Distribution, ecological, and human health risks. Environmental Science and Pollution Research 23(19):19341-19349.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3350200

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field study; other: Not reported
Solvent, Reactivity, Storage, Stability	NA; NR; Water samples filtered through glass fibers, pH adjusted to 2, stored at 4°C in brown glass bottles with Teflon lids; sediment samples stored at -20°C in aluminum foil envelopes; NR
Radiolabel, Source, State, Purity	NA; Samples collected from Humen, Jiaomen, Hongqimen, Modaomen, Jitimen, and Yamen estuaries in China; NA; NA Notes: Analytical standard mixture including DMP, DEP, DEHP, DnOP, BBP, and DBP in isooctane at 1g/L each, obtained from Dr. Ehrenstorfer GmbH, Germany
Sampling Frequency, Sampling Details, and Number of Replicates	2-4 April 2013, 25-27 June 2013, and 10-15 January 2013; Collected during falling tide; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; NA; Surface sediment samples and water samples collected from 6 sites in the Pearl River Delta, China
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Estuarine natural sediment
Media, Recovery, and Statistics	Estuarine natural water; Not reported; Pearson correlation coefficient values of concentrations in water and sediment: $p < 0.05$, $r >/= 0.779$, significant correlation
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Procedural blank; 0.022 ug/L DBP and 0.042 ug/L DEHP detected; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 0.32, 0.71, 2.28 g d.w./L
Partition Coefficient Type and Partition Coefficient Results	Sediment-water partition coefficient: spring, summer, and winter, respectively.; Calculated based on measured sediment and water concentrations.
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Spring average (range): 3.61 (1.08-8.84) ug/L; 1.15 (0.47-2.72) ug/g dwSummer average (range): 5.62 (0.49-12.1) ug/L; 3.97 (1.22-8.53) ug/g dwWinter average (range): 0.57 (0.15-1.36) ug/L; 1.3 (0.81-2.11) ug/g dw
Mass Balance	NA

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Procedural blanks were included.

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Study Citation:	Li, X., Yin, P., Zhao, L. (2016). Phthalate esters in water and surface sediments of the Pearl River Estuary: Distribution, ecological, and human health risks. Environmental Science and Pollution Research 23(19):19341-19349.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3350200

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions during sampling were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty was addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Averages and ranges of the sites reported, not full raw data, but sufficient to calculate partitioning. Extraction recovery not reported. Limits of detection reported, analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	Quarterly from July 1995-May 1996.; Samples taken from Ouse sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: 31,000; 25,000; 1,000; 444
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	Quarterly from July 1995-May 1996.; Samples taken from Aire sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: 320,000; 36,000; 970; 1,100
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	Quarterly from July 1995-May 1996.; Samples taken from Swale sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: 68,300; 82,500; NR; 8,250
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	Quarterly from July 1995-May 1996.; Samples taken from Calder sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: 39,000; 51,000; 9,200; 10,300
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	Quarterly from July 1995-May 1996.; Samples taken from Don sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: 13,000; 14,000; NR; 5,300
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Suspended sediment and aqueous phase DEHP concentration field sampling.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP was detected in field samples.
Sampling Frequency, Sampling Details, and Number of Replicates	October 1995, February 1996, and May 1996.; Samples taken from Trent sampling site, a freshwater tributary of the Humber estuary.; Number of replicate samples not reported during each of the 4 sampling periods.
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Suspended sediment samples were collected using field based continuous-flow centrifugation system. 1-L river samples were collected and extracted into 100mL DCM.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Kd = conc. associated with suspended sediment (µg/kg, dry weight)/conc. associated with aqueous phase (µg/L)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Kd calculated from each July, October, February and May sampling periods, respectively: NR; 42,000; 2,000; 430
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was determined in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of blanks was not reported but some of the methods were described elsewhere so the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The storage and treatment of the samples was not clearly reported in the study but may be reported elsewhere.
Domain 3: Test Conditions				

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Study Citation:	Long, J. L. A., House, W. A., Parker, A., Rae, J. E. (1998). Micro-organic compounds associated with sediments in the Humber rivers. Science of the Total Environment 210-211:229-253.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334778

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Testing conditions were not reported so the consistency cannot be evaluated.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established (field study)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the concentration measurements which may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data is not available for an independent review. This may have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Lu, C. (2009). Prediction of environmental properties in water-soil-air systems for phthalates. Bulletin of Environmental Contamination and Toxicology 83(2):168-173.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	807140

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; 0
Confidentiality, Type, Guideline	None; QSAR; other: Quantitative Structure-Property relationship model for estimation of Koc
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; QSPR model using the Lu index, which is based on the shortest distance matrix.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Log Koc; 5.09
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not reported
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by common name and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			

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Study Citation:	Lu, C. (2009). Prediction of environmental properties in water-soil-air systems for phthalates. Bulletin of Environmental Contamination and Toxicology 83(2):168-173.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	807140

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to the study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	The metric is not applicable to the study type.
	Metric 18:	QSAR Models	Uninformative	The QSPR model failed the standard error threshold of <0.3 and is therefore rated unacceptable.

Overall Quality Determination — Uninformative

Study Citation:	Mackintosh, C. E., Maldonado, J. A., Ikonomou, M. G., Gobas, F. A. (2006). Sorption of phthalate esters and PCBs in a marine ecosystem. Environmental Science & Technology 40(11):3481-3488.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2158899

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sediment sorption in a marine ecosystem
Solvent, Reactivity, Storage, Stability	NR; NR; Water samples were stored at 4 deg. C in dark; sediment samples stored at -20 deg. C in dark; NR
Radiolabel, Source, State, Purity	NR; shallow marine inlet in Vancouver; NR; Analytical standard: HPLC grade
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 4L water samples collected in amber glass bottles at 4 locations in the shallow inlet; surface samples collected in glass jars at 4 locations in False Creek for a total of 17 samples; samples taken in triplicate
pH, Test Temperature, Buffer, and Test Details	Not reported; 11°C; Not reported; measured concentrations in bottom sediments, suspended sediment, and seawater
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; organic carbon: 2.80±0.31% in bottom sediments, 40±0.4% in suspended sediments; Not reported
Bulk Density and Matrix Details	Not reported; Samples collected from False Creek Harbor in Vancouver
Media, Recovery, and Statistics	Not reported; Average recovery based on spiked internal standards of DMP, DnBP and DnOP: sea water 37-86±12-28% spring water 48-79±22-36% bottom sediment 82-95±12-19%; Standard deviations are reported along with means, unless otherwise specified.
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Spring water, used for procedural blanks, was collected from Lynn Headwater Regional Park.; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Koc; Kbs,oc = 5.44±0.26 (OD), 9.20±0.26 (FD); Kss,oc = 6.14±1.42 (OD), 9.21±0.74 (FD)
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Kbs,oc: organic carbon normalized bottom-sediment-water; Kss,oc: suspended sediment-water distribution; OD: operationally defined freely dissolved and FD: estimatedtruly freely dissolved
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The test substance source of sampling was reported and the purity of the internal standard for analysis was also reported.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	Field studies do not require negative controls.
	Metric 4: Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Mackintosh, C. E., Maldonado, J. A., Ikonomou, M. G., Gobas, F. A. (2006). Sorption of phthalate esters and PCBs in a marine ecosystem. Environmental Science & Technology 40(11):3481-3488.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2158899

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Mitsunobu, S., Takahashi, Y. (2006). Study of the water solubility and sorption on particulate matters of phthalate in the presence of humic acid using C-14 labelled di-(2-ethylhexyl)phthalate. Water, Air, and Soil Pollution 175(1-4):99-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	501984

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Desorption of DEHP from particulate matter (kaolinite; ferrihydrite) in the absence and presence of humic acid (HA)
Solvent, Reactivity, Storage, Stability	Hexane; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]DEHP 433 MBq/mmol; Sigma Chemical Co. (St. Louis, MO); Stock solution in hexane; >99%
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	6; 25°C; 0.010M acetate buffer; Not reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; kaolinite; ferrihydrite; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Keq: Binding constant of DEHP in ternary systems (presence of HA and PM); log Keq = 2.9 (ferrihydrite and THA, LHA, SRHA); log Keq = 2.4 (kaolinite and THA); log Keq = 2.3 (kaolinite and LHA, SRHA); Keq was determined by a nonlinear least-square regression analysis of the experimental data; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kw-p (g/cm3) = solid-water partition coefficient = concentration of DEHP in aqueous phase/concentration of DEHP in PM; Kw-p = 10^-3, log Kw-p = -2 (kaolinite); Kw-p = 10^-4, log Kw-p = -3 (ferrihydrite)
Partition Coefficient Phase and Partition Coefficient Results	solids-water in suspended matter; Not reported
Mass Balance	Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Concurrent control groups were not included.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stock concentration were reported and were appropriate for the study.

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Study Citation:	Mitsunobu, S., Takahashi, Y. (2006). Study of the water solubility and sorption on particulate matters of phthalate in the presence of humic acid using C-14 labelled di-(2-ethylhexyl)phthalate. Water, Air, and Soil Pollution 175(1-4):99-115.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	501984

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Details regarding the system type and design were limited; however, the omissions were not likely to have had a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable; considering known Kow, Koc; no serious deficiencies were identified, and the value is plausible.
	Metric 18:	QSAR Models	High	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethyl(hexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sorption and mobility in agricultural soil using batch and column experiments
Solvent, Reactivity, Storage, Stability	Solution in 0.1% methanol for batch sorption experiment; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 3
pH, Test Temperature, Buffer, and Test Details	7.3±0.2 (soil); Not reported; Not reported; Shake flask batch sorption experiment to determine organic carbon distribution coefficient Koc; dynamic column experiment to determine transport (retardation factor Rf, sorption coefficient Kd)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 17±3% sand,31±5%silt, 52±4%clay, 25±2 mg/g TOC; 4.02±0.1 dS/m
Bulk Density and Matrix Details	Not reported; Background concentration of DEHP prior to test = 856±16 ug/kg
Media, Recovery, and Statistics	Agricultural soil irrigated with wastewater; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	retardation factor Rf; 7.2; Rf (dimensionless) = 1+ pKd/theta; p = soil bulk density, Kd is linear sorption coefficient, theta is volumetric water content in the soil; 4.2E+4 L/kg (batch, static distribution coefficient Kd); 3.9 L/kg (column, dynamic distribution coefficient Kd)
Partition Coefficient Type and Partition Coefficient Results	log Koc; 6.3
Partition Coefficient Phase and Partition Coefficient Results	soil-water; distribution coefficient normalized to soil organic carbon content
Mass Balance	Mass balance resulted in 1% loss; possibly due to biodegradation although sterile soils were used aseptic laboratory conditions were not maintained.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Appropriate controls were included but details were not reported; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not fully reported (pH, temperature, duration); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate; equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported; however the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements (mass balance) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis or kinetic calculations were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl(hexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sorption and mobility in agricultural soil using batch and column experiments
Solvent, Reactivity, Storage, Stability	Solution in 0.1% methanol for batch sorption experiment; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 3
pH, Test Temperature, Buffer, and Test Details	6.8±0.1 (soil); Not reported; Not reported; Shake flask batch sorption experiment to determine organic carbon distribution coefficient Koc; dynamic column experiment to determine transport (retardation factor Rf, sorption coefficient Kd)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Phaeozem; 34±4% sand,40±4%silt, 26±1%clay, 22±2 mg/g TOC; 3.99±0.3 dS/m
Bulk Density and Matrix Details	Not reported; Background concentration of DEHP prior to test = 534±26 ug/kg
Media, Recovery, and Statistics	Agricultural soil irrigated with wastewater; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	retardation factor Rf; 6.0; Rf (dimensionless) = 1+ pKd/theta; p = soil bulk density, Kd is linear sorption coefficient, theta is volumetric water content in the soil; 2.4E+4 L/kg (batch, static distribution coefficient Kd); 3.2 L/kg (column, dynamic distribution coefficient Kd)
Partition Coefficient Type and Partition Coefficient Results	log Koc; 6.1
Partition Coefficient Phase and Partition Coefficient Results	soil-water; distribution coefficient normalized to soil organic carbon content
Mass Balance	Mass balance resulted in 1% loss; possibly due to biodegradation although sterile soils were used aseptic laboratory conditions were not maintained.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Appropriate controls were included but details were not reported; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not fully reported (pH, temperature, duration); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate; equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported; however the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements (mass balance) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis or kinetic calculations were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-2-ethyl(hexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sorption and mobility in agricultural soil using batch and column experiments
Solvent, Reactivity, Storage, Stability	Solution in 0.1% methanol for batch sorption experiment; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 3
pH, Test Temperature, Buffer, and Test Details	6.9±0.2 (soil); Not reported; Not reported; Shake flask batch sorption experiment to determine organic carbon distribution coefficient Koc; dynamic column experiment to determine transport (retardation factor Rf, sorption coefficient Kd)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Leptosol: 28±2% sand,48±4%silt,24±1%clay, 19±3 mg/g TOC; 4.85±0.5 dS/m
Bulk Density and Matrix Details	Not reported; Background concentration of DEHP prior to test = 370±13 ug/kg
Media, Recovery, and Statistics	Agricultural soil irrigated with wastewater; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	retardation factor Rf; 4.1; Rf (dimensionless) = 1+ pKd/theta; p = soil bulk density, Kd is linear sorption coefficient, theta is volumetric water content in the soil; 1.8E+4 L/kg (batch, static distribution coefficient Kd); 1.5 L/kg (column, dynamic distribution coefficient Kd)
Partition Coefficient Type and Partition Coefficient Results	log Koc; 5.9
Partition Coefficient Phase and Partition Coefficient Results	soil-water; distribution coefficient normalized to soil organic carbon content
Mass Balance	Mass balance resulted in 2% loss; possibly due to biodegradation although sterile soils were used aseptic laboratory conditions were not maintained.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Appropriate controls were included but details were not reported; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Murillo-Torres, R., Duran-Alvarez, J. C., Prado, B., Jimenez-Cisneros, B. E. (2012). Sorption and mobility of two micropollutants in three agricultural soils: A comparative analysis of their behavior in batch and column experiments. Geoderma 189:462-468.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2002270

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not fully reported (pH, temperature, duration); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate; equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported; however the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements (mass balance) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis or kinetic calculations were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Murillo-Torres, R., Durán-Alvarez, J. C., Prado-Pano, B., Jiménez-Cisneros, B. (2012). Mobility of 4-nonylphenol and di(2-ethylhexyl) phthalate in three agricultural soils irrigated with untreated wastewater. Water Science and Technology 66(2):292-298.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333819

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	One time sampling.; 10mL supernatant withdrawn and centrifuged for 5min.; 3
pH, Test Temperature, Buffer, and Test Details	Vertisol: 7.3; Leptosol: 6.9; Phaeozem: 6.8; 25°C; None; Flasks with soil and solution shaken for 24h at 150 rpm before addition of test substance at concentrations of 200, 500, 1000, 1500, 2000, and 3000 µg/L.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; (Clay/Loam/Sand %)Vertisol: 52/31/17; Leptosol: 24/48/28; Phaeozem: 26/40/34. OC (mg/g) Vertisol: 25; Leptosol: 19; Phaeozem: 22; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	10g soil added to Erlenmeyer flask with 50mL of 10mmol/L CaCl2.; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Kd (x10^4): Vertisol: 4.2; Leptosol: 1.8; Phaeozem: 2.4
Partition Coefficient Type and Partition Coefficient Results	Log Koc; Vertisol: 6.3; Leptosol: 5.9; Phaeozem: 6.1
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Values are in the same range as two other studies.
Mass Balance	Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have had a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.

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Study Citation:	Murillo-Torres, R., Durán-Alvarez, J. C., Prado-Pano, B., Jiménez-Cisneros, B. (2012). Mobility of 4-nonylphenol and di(2-ethylhexyl) phthalate in three agricultural soils irrigated with untreated wastewater. Water Science and Technology 66(2):292-298.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333819

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and stock solutions were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the study groups.
	Metric 8:	System Type and Design	High	The system type was appropriate and the equilibrium time was sufficient.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Standard deviations in the concentration measurements were not reported but linear correlation coefficients were reported and sufficient. Sterilized soil controls were not used but there was no reported evidence of biodegradation in the samples.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The limit of detection and percent recoveries were not reported which could potentially have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported in detail but the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Murray, H. E., Ray, L. E., Giam, C. S. (1981). Phthalic acid esters, total DDTs, and polychlorinated biphenyls in marine samples from Galveston Bay, Texas. Bulletin of Environmental Contamination and Toxicology 26(1):769-774.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334343

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Field survey of water and sediment at 8 sampling sites.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Samples were collected from July 1978 to May 1979; Water samples collected in 1 gallon, solvent cleaned glass container. Sediment collected in Ekman grab sampler and stored in solvent-cleaned, quart Mason jars.; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Solvents were pesticide quality.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not Reported; Not Reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not Reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Sites 1-8, respectively: 0.053, 0.0087, 0.14, 0.081, 0.075, 0.046, 0.21, 0.24
Partition Coefficient Type and Partition Coefficient Results	Kf calculated using same site concentration measurements. Kf = conc. In sediment (ng/g)/conc. in water (ng/L); Not Reported
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	N/A	The test substance was measured in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of controls was not reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation were not reported but the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Murray, H. E., Ray, L. E., Giam, C. S. (1981). Phthalic acid esters, total DDTs, and polychlorinated biphenyls in marine samples from Galveston Bay, Texas. Bulletin of Environmental Contamination and Toxicology 26(1):769-774.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1334343

Domain	Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Test conditions were not clearly reported but the omissions are unlikely to have a substantial impact on the study results.
Metric 7:	Testing Consistency	Medium	Testing conditions were not reported but there is no evidence that sample groups were inconsistently treated.
Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	There were minor differences between the outcome assessment methodology and the outcome of interest.
Metric 12:	Test Substance Purity	High	The sampling methodology was reported and appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Reported concentrations were the mean of four measurements, however, the standard deviation was not reported.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Several of the analytical details were omitted which may have a substantial impact on the study results.
Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and information was not provided to conduct an independent analysis.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Koc; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; Suspended solid
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 22,000 to 1,000,000; Suspended solid Koc values; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Staples CA et al; Chemosphere 35: 667-715 (1997). no HEROID

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; % sorption; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	6.78; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	other; 11.6% clay, 10.7% silt, 75.4% sand, 1.6% organic carbon; NR
Bulk Density and Matrix Details	NR; Askov soil
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; >99%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: deJonge H et al; J Environ Qual 31: 1963-71 (2002)HEROID unknown.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Koc; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc; 4.94; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Schuurmann G et al; Environ Sci Technol 40: 7005-11 (2006)HEROID 4140306

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Koc; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc; 5.17-6.23; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Krop HB et al; Rev Environ Contam Toxicol 169: 1-122 (2001)HEROID 2171268

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; % sorption; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	6.64; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	other; 14.9% clay, 17.1% silt, 65.2% sand, 1.6% organic carbon; NR
Bulk Density and Matrix Details	NR; Rogen soil
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; >97%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: deJonge H et al; J Environ Qual 31: 1963-71 (2002)HEROID unknown.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Koc; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc; 5.72; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Thomsen M et al; Chemosphere 38: 2613-24 (1999)HEROID 679810

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; % sorption; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	6.34; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	other; 5.2% clay, 4.8% silt, 87.6% sand, 1.4% organic carbon; NR
Bulk Density and Matrix Details	NR; Lundgaard soil
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; >99%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: deJonge H et al; J Environ Qual 31: 1963-71 (2002) HEROID unknown.

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Koc; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; soil/sediment
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 87,420 - 510,000; soil/sediment Koc values; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	NR; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7681905

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination — Medium

* Related References: Staples CA et al; Chemosphere 35: 667-715 (1997). HEROID not located.

Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	789349

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Monitoring samples
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Netherlands fresh surface water and sediment (fish and air samples also taken); NR; NA Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	66 freshwater samples and 12 marine samples were taken from 23 sites in spring, summer, and autumn 1999. early 1999, 30 sediment samples were collected in the Netherlands; 32 pairs of water and solid concentrations were obtained; NA
pH, Test Temperature, Buffer, and Test Details	NR; 8 (spring), 17 (summer) and 12 (autumn); NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	other; NR; NR
Bulk Density and Matrix Details	NR; sediment
Media, Recovery, and Statistics	freshwater; 95% and 105% for d4-DEHP; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; there appears to be no equilibrium between air and water nor between sediment and water; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	NA; NA; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Kp, susp 870, 9211 and 41149 mg/kg for the 5th, 50th and 95th percentiles, respectively. Based on the 32 pairs of concentrations; Not Reported; NA
Partition Coefficient Type and Partition Coefficient Results	NA; NA
Partition Coefficient Phase and Partition Coefficient Results	NA; NA
Mass Balance	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical mean.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.

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Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	789349

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Low	The test substance stability (degradation) were discussed but not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established or reported preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions. The minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).

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Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	789349

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1316257

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Calculation; other: Calculated from test substance concentration in Lake Yssel water and suspended particulate matter
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Polyscience, Niles, IL, USA; NR; ≥98% Notes: Di(2-ethylhexyl) phthalate
Sampling Frequency, Sampling Details, and Number of Replicates	12 consecutive days; Not applicable; 6 locations
pH, Test Temperature, Buffer, and Test Details	Not applicable; Not applicable; Not applicable; Lake water samples collected and extracted
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 8.1% organic carbon in SPM; Not reported
Bulk Density and Matrix Details	Not reported; suspended particulate matter from Lake Yssel water
Media, Recovery, and Statistics	Lake Yssel water; 88% for suspended particulate matter and 87% from water; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Authors theorize that biodegradation disturbs the water spm partitioning equilibrium; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Not applicable
Partition Coefficient Type and Partition Coefficient Results	log koc; 5.8
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Based on the mean PE concentrations in water and SPMlog Koc (S) = 5.7log Koc (Kow) = 5.7log Koc (mean) = 5.8
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Sterile controls were not required for this study.
Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			

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Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1316257

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	There were omissions in test method detail; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 6:	Testing Conditions	Low	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Limited details were reported in testing consistency; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There were omissions in details; however, the omissions were not likely to have had a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	There were omissions in data reporting; however, the omissions were not likely to have had a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	There were omissions in the calculation details; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

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Study Citation:	Ritsema, R., Cofino, W. P., Frintrop, P. C., Brinkman, U. A. (1989). Trace-level analysis of phthalate esters in surface water and suspended particulate matter by means of capillary gas chromatography with electron-capture and mass-selective detection. Chemosphere 18(11-12):2161-2176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1316257

EVALUATION

Domain	Metric	Rating	Comments

Study Citation:	Ruminski, J. K., Dejewska, B., Wojtanis, J. (1995). Environmental research. Part I. Investigations on dioctyl pthalate (DEHP) pollution in soil and surface water near Wabrzezno (Torun District). Polish Journal of Environmental Studies 4(4):65-69.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5707207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; Field study partitioning
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Samples collected near Sitno Lake, near Wąbrzeźno, Poland; NA; NA
Sampling Frequency, Sampling Details, and Number of Replicates	Once on February 2, 1994; Bottom mud collected 0.5 and 1.5 m under water level; 2
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; NA; Field study at near outlet of wastewater canal leading from Wąbrzeźno, Poland, synthetic polymers factory, and near an outflow from the lake
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Bottom mud from two sites, 0.5 and 1.5 m depth, water content: 90.48 - 92.56% (site 1, 0.5 m); 87.88 - 90.10% (site 1, 1.5 m); 87.20-90.83% (site 2, 0.5 m); 89.83-89.91% (site 2, 1.5 m)
Media, Recovery, and Statistics	Natural water from site; ”practically full recovery”; NA
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Field study; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Kd = [bottom mud, mg/kg] / [water, ppm]; Site 1: 148.5 and 583.9 L/kg (0.5 m); 449.1 and 494.7 L/kg (1.5 m)Site 2: 80.43 and 395.1 L/kg (0.5 m); 177.6 and 338.2 L/kg (1.5 m)
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Site 1, 0.5 m: 18.36 and 76.61 mg/kg (soil); 0.1236 and 0.1312 ppm (water); 1.5 m: 82.1 and 66.49 mg/kg; 0.1828 and 0.1344 ppmSite 2, 0.5 m: 51.86 and 63.06 mg/kg; 0.6448 and 0.1596 ppm; 1.5 m: 80.56 and 55.6 mg/kg; 0.4536 and 0.1644 ppm
Mass Balance	NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample collection source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Field and analytical blanks were not explicitly included.

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Study Citation:	Ruminski, J. K., Dejewska, B., Wojtanis, J. (1995). Environmental research. Part I. Investigations on dioctyl pthalate (DEHP) pollution in soil and surface water near Wabrzezno (Torun District). Polish Journal of Environmental Studies 4(4):65-69.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5707207

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Sediment sample preparation was reported, storage of water and sediment samples was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Low	Only mud water content was reported, no other characteristics were included.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partition coefficients.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate, only two replicates were collected which may not be representative.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study provided limited sample characteristics.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, recovery was reported qualitatively and limits of detection were not reported. Raw data was reported; partition coefficients were calculated by the reviewer.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were reasonable based on the method but plausibility cannot be verified without other sample characteristics (ex. organic carbon content). Data interpretation was not included by the study authors.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Russell, D. J., Mcduffie, B. (1986). Chemodynamic properties of phthalate esters partitioning and soil migration. Chemosphere 15(8):1003-1022.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1316119

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Shake flask method for soil-water partition coefficients
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Eastman Kodak Co., Rochester, NY; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	1 time after 24 hours; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 25±2°C; Not reported; Soil and aqueous test substance shaken in 250 mL Erlenmeyer flasks with ground glass stoppers for 24 hours and then the aqueous phase and soil phase extracts analyzed
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 1.59% OC; Not reported
Bulk Density and Matrix Details	NR quantitatively but discussed; Broome County, NY composite soil
Media, Recovery, and Statistics	aqueous; NR quantitatively but discussed and considered by controls; Limited details
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; formaldehyde added to inhibit biodegradation; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Kp (partition coefficient); 1390; Not applicable; Not reported
Partition Coefficient Type and Partition Coefficient Results	Koc; 87,420 (calculated from Kp)
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Not applicable
Mass Balance	NR quantitatively but discussed and considered by study

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent blank control was reported.
Metric 4:	Test Substance Stability	High	The test substance stability was considered in this study.
Domain 3: Test Conditions			

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Study Citation:	Russell, D. J., Mcduffie, B. (1986). Chemodynamic properties of phthalate esters partitioning and soil migration. Chemosphere 15(8):1003-1022.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1316119

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Non-guideline method used without validation of results.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Testing details were omitted and had limited detail; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 8:	System Type and Design	Medium	Details regarding the system type and design were limited; however, the omissions were not likely to have had a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology addressed the intended outcome of interest; however, several details were not reported quantitatively.
	Metric 12:	Test Substance Purity	Medium	Limited detail; however, the lack of reporting not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Test substance adsorption to glass was also investigated.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited details were reported, but this was not likely to have impacted the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details were reported, but this was not likely to have impacted the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sayyad, G., Price, G. W., Sharifi, M., Khosravi, K. (2017). Fate and transport modeling of phthalate esters from biosolid amended soil under corn cultivation. Journal of Hazardous Materials 323(Part A):264-273.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3491242

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Model developed to estimated adsorption parameters based on experimental observations
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Alkaline treated biosolids obtained form N-Vitro Systems Canada Biosolids Facility in Halifax Regional Municipality; Solid; NA
Sampling Frequency, Sampling Details, and Number of Replicates	May - November 2014; One week and on month after biosolid application; Composite of 5 soil cores from center cell, diameter 2.5 cm and depth of 0 -15 cm; 3
pH, Test Temperature, Buffer, and Test Details	5.2 (soil), 9.4 (biosolid); Not reported; NA; Lysimeter cells of soil established in 2009 and received alkaline treated biosolids from Halifax biosolids facility applied in 2012 - 2013 at 0, 7, and 28 Mg/ha, cells planted with annual rye grass, treatment increased in 2014 to 28 and 42 Mg/ha
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 10.3% clay, 30.9% silt, 58.9% sand, 3.4% organic matter; Not reported
Bulk Density and Matrix Details	1.39 mg/cm^3; Ortho-Humic Podzol soil (sandy loam), in Nova Scotia, Canada
Media, Recovery, and Statistics	Alkaline treated biosolids, 67.5% dry matter, 7.17 ug/kg DBP; Not reported; HYDRUS-1D model calculated estimates on chemical transport based on soil bulk density, particle analysis, saturated hydraulic conductivity, and moisture curves. Run one two models: equilibrium advection-dispersion and physical nonequilibrium advec.-disp.
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Control; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 0.01 cm^3/ug
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Dispersion coefficient: 0.70 cm^2/dFraction of sorption sites assumed to be in equilibrium with solution: 0.01Freundlich exponent: 0.05First order sorption rate coefficient for non-equilibrium sites: 6E-9 /day
Mass Balance	Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Sample source was reported, analytical standard information was not provided.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A control was included but the results of the control were not reported.

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Study Citation:	Sayyad, G., Price, G. W., Sharifi, M., Khosravi, K. (2017). Fate and transport modeling of phthalate esters from biosolid amended soil under corn cultivation. Journal of Hazardous Materials 323(Part A):264-273.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3491242

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Biosolid sample application was reported, but not information on storage prior to application or other initial processing.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Soil characteristics of importance were reported, some biosolids information was reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate for model calibration.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Model parameters (R^2, mean absolute error, root mean square error) were determined and of an appropriate range.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Sample extraction and validation methods reported in a previous study; analytical method was appropriate. No raw experimental data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Model was described and used appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were appropriate.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sha, Y., Xia, X., Yang, Z., Huang, G. H. (2007). Distribution of PAEs in the middle and lower reaches of the Yellow River, China. Environmental Monitoring and Assessment 124(1-3):277-287.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	683003

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di (2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Field study; other: Partition coefficient between suspended matter and water samples
Solvent, Reactivity, Storage, Stability	Analytical grade carbon disulfide (CS2); NR; NR; NR
Radiolabel, Source, State, Purity	NR; Beijing chemical company; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	Multiple samples collected, frequency not reported; Water samples taken from 0-20 cm. Grab sampler used for surface sediment samples. 2 L pre-cleaned aluminum jar used for water samples. 0.45 μm press filter used for suspended particle samples.; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Samples stored at 4°C.; Not reported; Sample clean-up done with column (40mL hexane discard, 80mL 7:3 Hexane:aether collection). Particulate phase and sediment precolumn treatment: dried, ground and sieved, dissolved in CS2. After shaking, organic layer was removed (repeated 2x).
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; TOC %: 0.17-0.28; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Relative uncertainty for water and suspended matter DEHP concentrations were generally less than 10%.
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; K (L/kg) from 5 locations = 1.7x10^3; 2.2x10^3; 2.6x10^3; 3.4x10^3; 2.0x10^4
Partition Coefficient Type and Partition Coefficient Results	Not reported; Not reported
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Not reported
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	The use of controls was not reported which may have an impact on the study results.

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Study Citation:	Sha, Y., Xia, X., Yang, Z., Huang, G. H. (2007). Distribution of PAEs in the middle and lower reaches of the Yellow River, China. Environmental Monitoring and Assessment 124(1-3):277-287.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	683003

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions were generally consistent across the sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate (field study).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some of the sampling details were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the concentration measurements and unlikely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable and the data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Sibali, L. L., Okonkwo, J. O., Mccrindle, R. I. (2013). Determination of selected phthalate esters compounds in water and sediments by capillary gas chromatography and flame ionization detector. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 48(11):1365-1377.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1599751

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; distribution of selected pollutants between river catchment water and sediment
Solvent, Reactivity, Storage, Stability	NA; NR; Water stored in bottles with 5 mL concentrated sulfuric acid at 4°C; sediment samples stored in glass bottles at -18°C; NR
Radiolabel, Source, State, Purity	NA; 7 sites in the Jukskei River catchment area, South Africa: Hartbeespoort Dam, before and after Johannesburg Water Works, Sandton/Kyalami, Marlboro, Alexandra, and Bruma Lake; NA; NA Notes: Analytical standard obtained from Supelco, Bellefonte, PA, 99.0 to 99.5% purity
Sampling Frequency, Sampling Details, and Number of Replicates	2005 winter and summer; Water samples collected in bottles 5 cm below surface; sediment samples collected with stainless grab, 0 - 5 cm below the surface; 3 (water); sediment NR
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Surface water and sediment samples collected from the banks and middles of 7 sites in the Jukskei River catchment area, South Africa: Hartbeespoort Dam, before and after Johannesburg Water Works, Sandton/Kyalami, Marlboro, Alexandra, and Bruma Lake
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Sediment from river catchment
Media, Recovery, and Statistics	River catchment water; 122±0.46% (water); 100±0.45% (sediment); One-way ANOVA and Pearson's; no significant correlation between water and sediment sample concentrations, suggesting different sources of pollutants for both phases; water concentrations affected by seasonal variation but not sediments (r = 1.00 P< 0.01)
Transformation Products, Equilibrium	Not reported; NA; field study; NA; field study
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Rinsed sample bottles; 0.04±0.12 to 0.11±0.03 ng/mL retained by sample bottle; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kd = [sediment]/[water] (not reported by the authors. Calculated by the reviewer); Kd = 2.61 - 7320 mL/g (summer), 1.76 - 6.63 mL/g (winter)
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Ranges for sitesMean sediment: 6.54±0.15 to 3660±5.06 ng/g dw (summer); 8.01±0.15 to 49.1±0.36 ng/g dw (winter)Mean water: 0.49±0.13 to 5.58±1.30 ng/mL (summer); 1.22±0.10 to 9.76±0.91 ng/mL (winter)
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The chemical of interest was identified by name.
	Metric 2:	Test Substance Purity	High	Sample sources were reported, the analytical standard source and purity was reported.

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Study Citation:	Sibali, L. L., Okonkwo, J. O., Mccrindle, R. I. (2013). Determination of selected phthalate esters compounds in water and sediments by capillary gas chromatography and flame ionization detector. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 48(11):1365-1377.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1599751

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Sorption loss controls to storage bottles were included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage was reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions or samples characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, prepared, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partition coefficients between water and sediment.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency addressed seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Surface water and surface sediment samples were collected, water above sediment was not collected. Water samples were analyzed unfiltered, which may have resulted in artificially high concentrations.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and percent recovery were reported. The partition coefficients were calculated by the reviewer from reported raw data.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				

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Study Citation:	Sibali, L. L., Okonkwo, J. O., Mccrindle, R. I. (2013). Determination of selected phthalate esters compounds in water and sediments by capillary gas chromatography and flame ionization detector. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 48(11):1365-1377.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1599751

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 17:	Verification or Plausibility of Results	Low	No sample characteristics (ex. Sediment organic carbon) were reported so the values could not be normalized. Additionally, no relationship between sediment and water sample concentrations was observed, possibly due to the fact that water was collected from the surface and not from above the sediment. This renders the overall confidence in these values as low.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Sirivithayapakorn, S., Limtrakul, S. (2008). Distribution coefficient and adsorption-desorption rates of di (2-ethylhexyl) phthalate (DEHP) onto and from the surface of suspended particles in fresh water. Water, Air, and Soil Pollution 190(1-4 (May 2008)):45-53.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1282268

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich, Singapore; NR; 97% Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	15 minutes; Sampling length for both adsorption and desorption experiments were 120 minutes.; 3
pH, Test Temperature, Buffer, and Test Details	Tests done at 4.0, 7.0, 10.0 adjusted pH.; Not reported; Not reported; Adsorption: 0.50g pure bentonite + 40mL DEHP solution were stirred for 120 min. Desorption: 10g sediment treated with 350mL of 289µg/L in a closed vessel and shaken for 15d. Treated sediment then stirred in distilled water for 120 min.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Organic carbon for natural suspended particles by weight: 0.13, 0.08 and 0.05%.; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Pure bentonite: pH = 8.0, specific gravity = 2.4; natural suspended particles: pH = 7.3; specific gravity = 1.9.; DEHP concentration was constant after 120 minutes in all controls.; R^2 was greater than 0.93 for every kd value.
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	kL = rate constant (per minute) = Mass transfer coefficient x interfacial area per unit volume.; Bentonite: pH 4: 0.0057, pH 7: 0.0057, pH 10: 0.0054, average: 0.0056 +/- 0.0002; Natural suspended particle: pH 4: 0.0048, pH 7: 0.0028, pH 10: 0.0041, average: 0.0039 +/- 0.0010.; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	kd (l/g); Bentonite: pH 4: 0.044, pH 7: 0.045, pH 10: 0.047, average: 0.045 +/- 0.002; Natural suspended particle: pH 4: 0.045, pH 7: 0.041, pH 10: 0.044, average: 0.043 +/- 0.003.
Partition Coefficient Phase and Partition Coefficient Results	Not reported; Not reported
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance purity was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were used to measure the level of DEHP adsorption to the experimental vessels.

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Study Citation:	Sirivithayapakorn, S., Limtrakul, S. (2008). Distribution coefficient and adsorption-desorption rates of di (2-ethylhexyl) phthalate (DEHP) onto and from the surface of suspended particles in fresh water. Water, Air, and Soil Pollution 190(1-4 (May 2008)):45-53.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1282268

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the target chemical was tested at concentrations below its aqueous solubility.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study type.
	Metric 7:	Testing Consistency	High	Testing conditions in each study group were reported and appropriate.
	Metric 8:	System Type and Design	High	The system was capable of maintaining equilibrium concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Besides sampling frequency, sampling methods were not described clearly; however, the omission is unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in the measurements was reported and was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The detection limit was not sensitive enough to measure desorption rates but was sufficient for the adsorption rate experiments.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Sullivan, K. F., Atlas, E. L., Glam C-S (1982). Adsorption of phthalic acid esters from sea water. Environmental Science & Technology 16(7):428-432.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333237

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Adsorption and desorption study of DEHP with several adsorbents
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	Duplicate experiments were performed using 14-C BEHP.; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	Adsorption was measured once per sample, desorption was measured 1-3 times.; Sediment was added to test tube with 2mL of unspiked seawater. After several hours, 10mL spiked seawater added (including for blanks without adsorbent). 10mL unspiked seawater added to adsorbent tubes for background level DEHP measurement.; 5-11 sample replicates and 2 blanks per experiment.
pH, Test Temperature, Buffer, and Test Details	8.10; 25°C; None; 12h equilibrium period used. Samples were centrifuged and extracted with isooctane. Adsorbent was then used for desorption experiments which involved addition of 10mL unspiked seawater addition, 12h equilibration, and extraction.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; The sediment samples contained: 43.7% sand/25.8% silt/30.4% clay/<1% organic matter. All adsorbents were solvent extracted to remove organics prior to experiments.; Not reported
Bulk Density and Matrix Details	Not reported; Seawater salinity was 36.0+/-0.5%. Organics were removed with column containing Amberlite XAD-2 and charcoal.
Media, Recovery, and Statistics	Adsorbents tested: montmorillonite, calcium montmorillonite, kaolinite, calcite, and marine sediment.; Not reported; Standard errors are reported for each partition coefficient and discussed in the study.
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Concentration in sorbent (ng/mg)/concentration in seawater (ng/mL); Unlabeled DEHP (GC analysis): montmorillonite: 11.4+/-1.1; calcite: 1.8+/-0.8; Radiolabeled DEHP (scintillation counting): montmorillonite: 12.7+/-0.8; kaolinite: 12.1+/-1.8; calcite: 1.8+/-0.4; Ca montmorillonite: 1.3+/-0.3; sediment: 5.1+/-1.0; montmorillonite (distilled water): 4.6+/-0.3; Not reported
Partition Coefficient Type and Partition Coefficient Results	Concentration in sorbent (ng/mg)/concentration in seawater (ng/mL); Desorption of unlabeled DEHP: montmorillonite: 13.0+/-1.8; calcite: 2.3+/-0.7.
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Desorption of radiolabeled DEHP: montmorillonite: 9.0+/-0.8; kaolinite: 15.3+/-3.0; calcite: 3.5+/-1.5; calcium montmorillonite: 6.2+/-2.5; sediment: 13.9+/-2.2; montmorillonite (distilled water): 9.8+/-1.1.
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to impact the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were used.

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Study Citation:	Sullivan, K. F., Atlas, E. L., Glam C-S (1982). Adsorption of phthalic acid esters from sea water. Environmental Science & Technology 16(7):428-432.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333237

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the study type.
	Metric 6:	Testing Conditions	High	Testing conditions were clearly reported and appropriate.
	Metric 7:	Testing Consistency	High	Testing conditions across study groups were generally consistent and any changes were reported and discussed.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were clearly reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the results was reported and discussed and unlikely to impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was sufficient to explain the fate of the target chemical in the system.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis reported in the study was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Sullivan, K. F., Giam, C. S. (1982). The adsorption of di-2 ethylhexyl phthalate and aroclor 1254 from sea water onto sedimentary particles. Abstracts of Papers of the American Chemical Society 183(MAR):81-ENVR.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335238

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; seawater and 3 clay minerals, calcite and sediment
Matrix, Clay Silts and Organic Carbon, and CEC	other; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NR; NR; NR; NR
Partition Coefficient Type and Partition Coefficient Results	NR; rapid and reversible
Partition Coefficient Phase and Partition Coefficient Results	NR; NR
Mass Balance	NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	No details reported in the study report (abstract).
Metric 4:	Test Substance Stability	N/A	No details reported in the study report (abstract).

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Study Citation:	Sullivan, K. F., Giam, C. S. (1982). The adsorption of di-2 ethylhexyl phthalate and aroclor 1254 from sea water onto sedimentary particles. Abstracts of Papers of the American Chemical Society 183(MAR):81-ENVR.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1335238

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	No details reported in the study report (abstract).
	Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results.
	Metric 7:	Testing Consistency	N/A	No details reported in the study report (abstract).
	Metric 8:	System Type and Design	N/A	No details reported in the study report (abstract).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods.
	Metric 12:	Test Substance Purity	N/A	No details reported in the study report (abstract).
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No details reported in the study report (abstract).
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No quantitative data reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Tan, G. H. (1995). Residue levels of phthalate esters in water and sediment samples from the klang river basin. Bulletin of Environmental Contamination and Toxicology 54(2):171-176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	680414

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field study; other: Calculated partition coefficients from river water and sediment samples
Solvent, Reactivity, Storage, Stability	Test substance extracted from river water in dichloromethane; test substance extracted from sediment samples in petroleum ether followed by 20% diethyl ether in petroleum ether; NA; Water and sediment samples stored in amber bottles; NA
Radiolabel, Source, State, Purity	NA; Klang River water and sediment; NR; NR Notes: Standard for extraction recovery obtained from Theta Kit, Theta Corp, Pennsylvania, USA
Sampling Frequency, Sampling Details, and Number of Replicates	Every three months from January 1992 to February 1993; Surface sediment excavated 0 to 10 cm deep; Surface water collected from the middle of the river 0.5 to 10 m deep with the grab sample technique; 2 sample replicates; 3 replicate analyses
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Partition coefficient calculated from test substance concentrations measured in field samples from the Klang River, in Malaysia
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Not Reported
Media, Recovery, and Statistics	River sub-surface water and river surface sediment; 83% average recovery from spiked sediment samples; 79% average recovery from spiked water samples; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not applicable
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Calculated at 7 different stations. Kf = 281.2, 45, 546, 50.3, 84.6, 9.5, and 1002.8
Partition Coefficient Type and Partition Coefficient Results	Calculated from [river sediment] / [river water]; Sediment concentrations = 3881, 896, 15015, 493, 1632, 609, and 7521 ng/g; water concentrations = 13.8, 19.9, 27.5, 9.8, 19.3, 64.3, and 7.5 ug/L
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Calculated
Mass Balance	Not applicable

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	Test substance was measured in environmental samples against reliable analytical standards.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.

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Study Citation:	Tan, G. H. (1995). Residue levels of phthalate esters in water and sediment samples from the klang river basin. Bulletin of Environmental Contamination and Toxicology 54(2):171-176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	680414

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance extraction and storage conditions were reported, and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in the sample conditions (pH, sediment type and characteristics), but these were not likely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	Replicates were collected and analyzed consistently.
	Metric 8:	System Type and Design	High	Environmental samples were collected at the same monitoring stations and are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions) and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	All reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical, extraction efficiency and target chemical concentrations were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Tan, G. H. (1995). Residue levels of phthalate esters in water and sediment samples from the klang river basin. Bulletin of Environmental Contamination and Toxicology 54(2):171-176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	680414

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Turner, A., Rawling, M. C. (2000). The behaviour of di-(2-ethylhexyl) phthalate in estuaries. Marine Chemistry 68(3):203-217.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5653178

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)-phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Adsorption on estuarine particles
Solvent, Reactivity, Storage, Stability	toluene; stock solution diluted in HPLC grade n-hexane; NR; NR; NR
Radiolabel, Source, State, Purity	uniformly labelled with 14C; specific activity 3.9E8 Bq/mmol; Sigma, St. Louis, MO; NR; radiochemical purity ≥98% Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	not applicable; Sediment and water phases were separated by centrifugation at 3000 rpm for 30 min; Not reported
pH, Test Temperature, Buffer, and Test Details	river water 7.25; sea water 7.96; 20°C; Not reported; water and sediment collected from Beaulieu Estuary during June 1996; 20 g/L sediment in filtered water, 14C-DEHP placed in centrifuge tubes contents equilibrated for 16h using lateral shaker in the dark
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; river water 8.97 mg/L OC; sea water 1.14 mg/L OC (0.65 mg/L after light exposure); Not reported
Bulk Density and Matrix Details	Not reported; Estuarine sediment: 2.32% organic carbon Foc
Media, Recovery, and Statistics	river water and sea water; 80% of the original 14C-DEHP added (see mass balance); Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; 16h to reach quasi-equilibrium was determined; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Distribution coefficient regression equations normalized withrespect to particulate organic carbon; 2.63E6 SPM^-1.15; 2.64E6 SPM^-0.75; river water; sea water (only partly accounted for by experimental uncertainty such as adsorption to container walls); Not reported
Partition Coefficient Type and Partition Coefficient Results	distribution coefficient; 3770; 49000
Partition Coefficient Phase and Partition Coefficient Results	soil-water; river water; sea water; based on linear-regression analysis
Mass Balance	81±9% total recovery (supernatant: 18±5%, pipette rinse: 0.7±0.5%, tube 1: 56±10%, tube 2: 6.4±4.5%)

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	No controls were included.
Metric 4:	Test Substance Stability	High	Test substance preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Turner, A., Rawling, M. C. (2000). The behaviour of di-(2-ethylhexyl) phthalate in estuaries. Marine Chemistry 68(3):203-217.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5653178

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not fully reported; some soil/water characteristics were omitted.
	Metric 7:	Testing Consistency	High	Testing was consistent across study groups.
	Metric 8:	System Type and Design	High	System design was reported and appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling method was reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited details regarding confounding variables.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail regarding analytical methods; MDL was not provided.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculation was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Vitali, M., Guidotti, M., Macilenti, G., Cremisini, C. (1997). Phthalate esters in freshwaters as markers of contamination sources: A site study in Italy. Environment International 23(3):337-347.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	680447

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field study; other: Partition coefficient estimated from concentrations measured in field sediment and water samples
Solvent, Reactivity, Storage, Stability	isooctane; NR; Water samples collected in glass bottles and stored in the dark; NR
Radiolabel, Source, State, Purity	NA; Water and sediment samples: Velino, Turano, and Salto Rivers; Salto, Scandarello, and Ventina lakes; Ratto River (tributary of Velino), Italy; NR; NA Notes: Phthalate analytical standards, >99% purity, were obtained from PolyScience Corporation, Alltech, IL
Sampling Frequency, Sampling Details, and Number of Replicates	3 series of sampling: June-July 1994, August 1995, and September-October 1994; Water samples collected 0-20 cm deep in glass bottles; sediment samples collected by stainless steel corer 10 cm deep; collected from 22 stations in the Velino River; 3 replicate analyses
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; river or lake water and sediment
Media, Recovery, and Statistics	surface river or lake water and surface river or lake sediment; water: 96%; sediment: 70%; average of 4 replicates: water:±1.8%; sediment:±8.1%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not applicable
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Calculated for 22 stations = 15.5, 16, 71, ND, ND, 143.4, ND, ND, ND, ND, 8.5, 60.9, 2.27, ND, ND, 71, ND, ND, ND, 19.7, 24.4, 5.27
Partition Coefficient Type and Partition Coefficient Results	Calculated from [river sediment] / [river water]; Sediment: 99.3, 38.7, 426.0, ND, ND, 229.5, ND, ND, ND, 3.2, 36.6, 487.3, 13.6, ND, ND, 426.0, ND, ND, ND, 37.5, 129.2, and 5.8 ug/kg; Water: 6.4, 2.4, 6.0, 4.8, ND, 1.6, ND, ND, 1.0, ND, 4.3, 8.0, 6.0, ND, ND, 6.0, 31.2, ND, 2.4, 1.9, 5.3, and 1.1 ug/L;
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substances were determined by GC-FID and analyzed in analytical grade solvent.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Blank controls were not reported but the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Vitali, M., Guidotti, M., Macilenti, G., Cremisini, C. (1997). Phthalate esters in freshwaters as markers of contamination sources: A site study in Italy. Environment International 23(3):337-347.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	680447

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some of the sediment characteristics were not reported.
	Metric 7:	Testing Consistency	High	No confounding variables between sample groups were noted.
	Metric 8:	System Type and Design	High	As a field study the system was at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was reported in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Sufficient statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wang, F., Xia, X., Sha, Y. (2008). Distribution of phthalic acid esters in Wuhan section of the Yangtze River, China. Journal of Hazardous Materials 154(1-3):317-324.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	698246

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field study; other: Koc value determination for river and lake water and sediment samples
Solvent, Reactivity, Storage, Stability	test substance in sediment phase extracted with carbon disulfide. The test substance was then concentrated via rotary evaporator, purified by "clean-up" columns (packed with dry silica gel and water) in hexane vehicle, and concentrated again; NR; Samples stored at 4°C; NR
Radiolabel, Source, State, Purity	NA; 29 sites in the Wuhan portion of the Yangtze River, China: 7 main stream, 22 tributary and lake sites; NR; NA Notes: standard PAE mixture purchased from Beijing Chemical Reagents Corporation (in analytical-grade carbon disulfide)
Sampling Frequency, Sampling Details, and Number of Replicates	Single sample or two samplings (high and low water period); Samples collected from 29 tributary, river, or lake sites of the Wuhan section of the Yangtze River, China, July - December 2005, during high and low water periods; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Field samples collected and test substance concentrations determined in water and sediment phase
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; TOC 0.66 - 2.09% high water period; 0.16 - 1.9% low water period; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	River and lake water and sediment samples; Water: 85.3 - 105.8% Sediment: 80.9 - 99.4%; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; High water period: 8.50E8 L/kg (Left Zhuankou), 2.60E8 L/kg (Left Wuhanguan), 4.10E8 (Left Yujiatou), 6.40E8 L/kg (Right Yujiatou); Low water period: 1.20E6 L/kg (Jinkou), 3.40E5 L/kg (Zhuankou), 7.10E5 (Wuhanguan), 4.10E5 L/kg (Yangluo); Based on OC normalized test substance concentration (ratio of test substance to TOC). Calculated Koc values were lower than theoretical values, showing transfer from water to sediment during low water periods; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The field sample source was reported, in addition to the source and purity of the analytical standards used.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require negative controls.

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Study Citation:	Wang, F., Xia, X., Sha, Y. (2008). Distribution of phthalic acid esters in Wuhan section of the Yangtze River, China. Journal of Hazardous Materials 154(1-3):317-324.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	698246

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The field sample preparation and storage was reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some sediment and water characteristics were not reported: pH, CEC, sediment type, and temperature.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used appropriate sampling methods. Number of sample replicates was not reported but is not expected to have a significant impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and not expected to have a significant impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical concentrations and extraction efficiency were reported. Analytical limits of detection were not reported but this is not expected to have a significant impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wang, H., Li, H., Song, Q., Gao, L., Wang, N. (2017). Adsorption of Phthalates on Municipal Activated Sludge. Journal of Chemistry 2017:1-7.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5666279

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Adsorption of Phthalates on Municipal Activated Sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich, USA; NR; NR Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	0, 0.25, 0.5, 1, 2, 4, and 8 hours; Not reported; 3
pH, Test Temperature, Buffer, and Test Details	7.0; 25°C; Not reported; 80 µg/L test concentration; flasks stirred with a thermostatic oscillator at 130 rpm
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; activated sludge taken from a secondary sediment tank of Jinan water treatment factory
Media, Recovery, and Statistics	prepared experimental water made with glucose as carbon source, NH4Cl as nitrogen source, certain amount of Mg, P, Fe, Ca, and Zn ions as trace nutrients, and sodium azide as inhibitor; spiked recovery: 83.20-111.78% standard deviation: 2.29-8.99%; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; adsorption equilibrium was reached in ca. 2hrs; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	rate constant; half-life; 0.697/hr; 0.994 hours; first-order kinetics; Not reported
Partition Coefficient Type and Partition Coefficient Results	Not reported; Not reported
Partition Coefficient Phase and Partition Coefficient Results	solids-water in activated sewage sludge; Not reported
Mass Balance	Initial 80 µg, 40.04 µg remained in sludge, 25.04 µg remained in water, 14.92 µg loss

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	Medium	Source was reported and purity was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Controls were not reported.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation, and storage conditions were not reported.

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Study Citation:	Wang, H., Li, H., Song, Q., Gao, L., Wang, N. (2017). Adsorption of Phthalates on Municipal Activated Sludge. Journal of Chemistry 2017:1-7.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5666279

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Sludge and water characteristics were limited.
Metric 7:	Testing Consistency	Medium	Limited detail regarding this metric.
Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate.
Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Limited detail regarding this metric; mass balance loss not fully discussed.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Low	Analytical detail was minimal.
Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were appropriate.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Low	Due to limited information on loss and lack of control, evaluation of the reasonableness of the study results was not possible.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; Analytically monitored
Radiolabel, Source, State, Purity	14C uniformly ring labeled; Sigma Chemical Co. (St. Louis, MO); NR; 97.8% radiopurity (GC and HPLC verified) Notes: Synthesized [U-ring-14C]phthalic anhydride and samples of the alcohols used to produce the corresponding bulk commercial products.
Sampling Frequency, Sampling Details, and Number of Replicates	after 24 hr; Tubes were centrifuged and 1.0 mL aliquots of the supernatant were analyzed.; Triplicate aliquots of supernatant analyzed
pH, Test Temperature, Buffer, and Test Details	8.32; 25±1°C; Not reported; Soil-solution ratios of 1:50, 1:100, 1:250, and 1:500
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 10.7% clay; 6.8% silt; 82.4% sand; 0.15% organic carbon; 3.72 meg/100 g
Bulk Density and Matrix Details	Not reported; Standard sediment sample EPA 8 (from Missouri River)
Media, Recovery, and Statistics	Test solution: 0.01 M Ca(NO3)2 deionized water solutions; Not reported; Freundlich equation with correlation coefficients > 0.91
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Equilibration time of 7 d for Koc determination; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Control glass adsorption samples, prepared with the test substance and no sediment, in triplicate; Glass adsorption in the presence of sediment; 70.0% adsorption to glass; 1.4% adsorption to glass in the presence of sediment; 86.8%, 78.7%, 70.6%, and 61.1% at 1:50, 1:100, 1:250, and 1:500 solid-solution ratio, respectively, after 24 hr equilibration
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 3.01E5; Koc = (Kd * 100) / %organic carbonKd = Freundlich isotherm sorption coefficient; 4.52E2
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Not Reported
Mass Balance	101% recovered by HPLC

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Glass adsorption control samples were included and considered in data analysis.

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Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance stability and homogeneity was analytically monitored.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Soil type and characteristics were reported, test temperature was reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system type was capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Partition coefficient calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: reference Cited in HSDB and ECHA

Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; Analytically monitored
Radiolabel, Source, State, Purity	14C uniformly ring labeled; Sigma Chemical Co. (St. Louis, MO); NR; 97.8% radiopurity (GC and HPLC verified) Notes: Synthesized [U-ring-14C]phthalic anhydride and samples of the alcohols used to produce the corresponding bulk commercial products.
Sampling Frequency, Sampling Details, and Number of Replicates	after 24 hr; Tubes were centrifuged and 1.0 mL aliquots of the supernatant were analyzed.; Triplicate aliquots of supernatant analyzed
pH, Test Temperature, Buffer, and Test Details	7.76; 25±1°C; Not reported; Soil-solution ratios of 1:50, 1:100, 1:250, and 1:500
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 25.8% clay; 39.5% silt; 34.6% sand; 0.66% organic carbon; 15.43 meg/100 g
Bulk Density and Matrix Details	Not reported; Standard sediment sample EPA 18 (from Mississippi River)
Media, Recovery, and Statistics	Test solution: 0.01 M Ca(NO3)2 deionized water solutions; Not reported; Freundlich equation with correlation coefficients > 0.91
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Equilibration time of 7 d for Koc determination; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Control glass adsorption samples, prepared with the test substance and no sediment, in triplicate; Glass adsorption in the presence of sediment; 70.0% adsorption to glass; 1.4% adsorption to glass in the presence of sediment; 96.4%, 96.6%, 90.7%, and 88.7% at 1:50, 1:100, 1:250, and 1:500 solid-solution ratio, respectively, after 24 hr equilibration
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 8.88E5; Koc = (Kd * 100) / %organic carbonKd = Freundlich isotherm sorption coefficient; 5.86E3
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Not Reported
Mass Balance	98.1% recovered by HPLC

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Glass adsorption control samples were included and considered in data analysis.
	Metric 4:	Test Substance Stability	High	The test substance stability and homogeneity was analytically monitored.

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Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Soil type and characteristics were reported, test temperature was reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system type was capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Partition coefficient calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: reference Cited in HSDB and ECHA

Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; Analytically monitored
Radiolabel, Source, State, Purity	14C uniformly ring labeled; Sigma Chemical Co. (St. Louis, MO); NR; 97.8% radiopurity (GC and HPLC verified) Notes: Synthesized [U-ring-14C]phthalic anhydride and samples of the alcohols used to produce the corresponding bulk commercial products.
Sampling Frequency, Sampling Details, and Number of Replicates	after 24 hr; Tubes were centrifuged and 1.0 mL aliquots of the supernatant were analyzed.; Triplicate aliquots of supernatant analyzed
pH, Test Temperature, Buffer, and Test Details	7.60; 25±1°C; Not reported; Soil-solution ratios of 1:50, 1:100, 1:250, and 1:500
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 42.7% clay; 7.1% silt; 50.2% sand; 1.88% organic carbon; 8.33 meg/100 g
Bulk Density and Matrix Details	Not reported; Standard sediment sample EPA 21 (from River east of Lorenzo, Illinois)
Media, Recovery, and Statistics	Test solution: 0.01 M Ca(NO3)2 deionized water solutions; Not reported; Freundlich equation with correlation coefficients > 0.91
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Equilibration time of 7 d for Koc determination; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Control glass adsorption samples, prepared with the test substance and no sediment, in triplicate; Glass adsorption in the presence of sediment; 70.0% adsorption to glass; 1.4% adsorption to glass in the presence of sediment; 96.2%, 96.3%, 92.1%, and 86.6% at 1:50, 1:100, 1:250, and 1:500 solid-solution ratio, respectively, after 24 hr equilibration
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 2.57E5; Koc = (Kd * 100) / %organic carbonKd = Freundlich isotherm sorption coefficient; 4.83E3
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Not Reported
Mass Balance	90.2% recovered by HPLC

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Glass adsorption control samples were included and considered in data analysis.
	Metric 4:	Test Substance Stability	High	The test substance stability and homogeneity was analytically monitored.

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Study Citation:	Williams, M. D., Adams, W. J., Parkerton, T. F., Biddinger, G. R., Robillard, K. A. (1995). Sediment sorption coefficient measurements for four phthalate esters: Experimental results and model theory. Environmental Toxicology and Chemistry 14(9):1477-1486.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5348335

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Soil type and characteristics were reported, test temperature was reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system type was capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Partition coefficient calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: reference Cited in HSDB and ECHA

Study Citation:	Xia, X., Zhang, J., Sha, Y., Li, J. (2012). Impact of irreversible sorption of phthalate acid esters on their sediment quality criteria. Journal of Environmental Monitoring 14(1):258-265.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1249500

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: sorption/desorption experiment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Beijing Reagent Company of China; NR; >99% purity Notes: Stock solutions prepared in methanol
Sampling Frequency, Sampling Details, and Number of Replicates	4 sediment samples;; Not Reported; 3
pH, Test Temperature, Buffer, and Test Details	7.23-8.81; 25°C; Not reported; Orbital shaking incubator, 125 rpm, at 25 deg C in dark for 3-7 days
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; TOC = 0.19-4.62%; 4.91-34.47
Bulk Density and Matrix Details	Not reported; Sediment from Hua yuankou, Xiao langdi, Dong fengzha and Zhuan kou
Media, Recovery, and Statistics	surface water from Xiao langdi of the Yellow River; 91.6-99.1% in the water phase and 94.9-99.4% in the sediment phase; averages reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; aqueous equilibrium concentrations= 0.084, 0.05, 0.023 and 0.185 mg/mL for four sediments; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not applicable
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Not reported
Partition Coefficient Type and Partition Coefficient Results	Log Koc reversible and irreversible; 4.19-5.31 and 6.50-6.81
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not applicable
Mass Balance	Evaluated; 7.3% average loss

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				

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Study Citation:	Xia, X., Zhang, J., Sha, Y., Li, J. (2012). Impact of irreversible sorption of phthalate acid esters on their sediment quality criteria. Journal of Environmental Monitoring 14(1):258-265.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1249500

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not fully reported; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Replicates were collected and analyzed consistently.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333872

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; other: The study reports the adsorption of DEHP onto sediment from distilled water and field sample analysis of DEHP in sediment and river water.
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Tokyo Chemical, Japan; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Sediment and water samples were measured in the laboratory experiment 14 times over 12 hours. F; 0.5g sediment added to sterilized centrifuge tubes with 50mL DEHP aqueous solution and shaken at 70 strokes/min.; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 25°C; Not reported; DEHP in field samples was measured to calculate the distribution ratio. A laboratory study was also done using distilled water and dried sediment.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Sediment was mostly sand. Oxidable carbon was 0.8-0.95% (w/w); Not reported
Bulk Density and Matrix Details	Not reported; Particle size: 1.0-0.6mm: 31+/-8%; 00.6-0.2mm: 40+/-7%; <0.3mm: 29+-11%.
Media, Recovery, and Statistics	Sediment and river water were collected in the Furu River, 0-1300m from a domestic wastewater discharge point. DEHP concentrations ranged from 1000-2000µg/kg in sediment and 8-25µg/L in river water. DEHP aqueous conc. in lab experiment: 17.5µg/L; Not reported; Not reported
Transformation Products, Equilibrium	Not reported; Equilibrium was reached at 4h according to a preliminary test.; Not reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Kd (laboratory experiment with distilled water) = (DEHP (sediment))/[DEHP, aqueous)]; Kd = 560 L/kg; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kd (DEHP, sediment)/(DEHP, aqueous) from field samples.; 340 L/kg
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Linear correlation of DEHP concentration in river sediment vs. DEHP concentration in river water: Slope = 68, intercept = 536, r^2=0.72
Mass Balance	Not reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used to determine adsorption to the centrifuge tube walls.

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Study Citation:	Yuwatini, E., Hata, N., Taguchi, S. (2006). Behavior of di(2-ethylhexyl) phthalate discharged from domestic waste water into aquatic environment. Journal of Environmental Monitoring 8(1):191-196.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1333872

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the substance.
	Metric 6:	Testing Conditions	High	Conditions were reported for water and sediment samples, most of the appropriate conditions were reported.
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently.
	Metric 8:	System Type and Design	High	Studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and addressed the outcomes of interest
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was addressed between different sample locations
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical concentrations were reported, analytical methods were suitable for detection of the target chemical
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were not performed
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zheng, X., Zhang, B. T., Teng, Y. (2014). Distribution of phthalate acid esters in lakes of Beijing and its relationship with anthropogenic activities. Science of the Total Environment 476-477:107-113.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2241688

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: Field or monitoring study samples analyzed evaluating concentrations in multiple compartments
Solvent, Reactivity, Storage, Stability	Methanol; NR; 4°C in the dark; NR
Radiolabel, Source, State, Purity	NR; Ehrenstorfer, Augsburg, Germany; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Water collected from April to May, 2012; Sediment collected 5 cm from the surface; 19 replicates in total
pH, Test Temperature, Buffer, and Test Details	7.32-9.06; Not applicable; Not reported; concentrations reported in water and sediment
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Sediment from Guanting Reservoir, Lakes Shichahai and Lakes in Summer Palace; sealed in 120 mL wide mouthed amber bottles with foil-lined caps
Media, Recovery, and Statistics	Water from Guanting Reservoir, Lakes Shichahai and Lakes in Summer Palace and pretreated following EPA method 3535; 71.0-97.7% for water, 83.8-109.4% for sediments and 91.0-109.3% for suspended particles; Minimum, maximum and mean values reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not applicable, monitoring study; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; 0.043-0.519 ug/L in water samples, ND-5754.7 ng/g d.w. in sediment and 48.4-529.0 ug/g d.w in suspended particle samples
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Not applicable
Partition Coefficient Type and Partition Coefficient Results	Not applicable; Not applicable
Partition Coefficient Phase and Partition Coefficient Results	Not applicable; Not applicable
Mass Balance	Not applicable, monitoring study

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance source was reported in this monitoring study. The source of analytical standards were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.

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Study Citation:	Zheng, X., Zhang, B. T., Teng, Y. (2014). Distribution of phthalate acid esters in lakes of Beijing and its relationship with anthropogenic activities. Science of the Total Environment 476-477:107-113.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2241688

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was appropriate for this type of study.
	Metric 6:	Testing Conditions	Low	Monitoring study; some details on water conditions, sediment and particulate matter characteristics omitted.
	Metric 7:	Testing Consistency	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 8:	System Type and Design	High	The system was appropriate for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling details were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis reported and acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reasonable and consistent with properties of test substance.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Zheng, X., Zhang, B. T., Teng, Y. (2014). Distribution of phthalate acid esters in lakes of Beijing and its relationship with anthropogenic activities. Science of the Total Environment 476-477:107-113.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2241688

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Zheng, Z., He, P. J., Fu, Q., Shao, L. M., Lee, D. J. (2008). Partition of six phthalic acid esters in soluble and solid residual fractions of wastewater sludges. Environmental Technology 29(3):343-350.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	675535

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, Guideline	No; Partitioning between soluble and insoluble sludge fractions; Not Reported
Solvent, Reactivity, Storage, Stability	NA; NA; WWTP samples stored in glass containers at 4 deg C; NR
Radiolabel, Source, State, Purity	NA; Not Reported; Sludge samples from 4 WWTPs in Shanghai, China; NA
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; Field samples collected from two municipal sewage treatment plants, one WWTP receiving domestic and industrial wastewaters, and one industrial WWTP
Matrix, Clay Silts and Organic Carbon, and CEC	other; 45 - 61% organic matter (soluble fraction); NR
Bulk Density and Matrix Details	NR; Sludge samples were mixed with CaCl2 solution and filtered through 0.7 Âµm glass microfiber filter to separate soluble and insoluble fractions.
Media, Recovery, and Statistics	Not Reported; 81-94% in sludge, 77-90% in soluble fractions; Correlation coefficient of UV absorbance at 254 nm / DOC (SUVA 254): 0.997
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; Field study; assumed to be at equilibrium.; Field study; assumed to be at equilibrium.
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Kd (solid sludge fraction / soluble sludge fraction); WWTP 1 Kd = 69WWTP 2 Kd = 30WWTP 3 Kd = 215WWTP 4 Kd = 6.0
Partition Coefficient Phase and Partition Coefficient Results	Insoluble - soluble sludge fractions; WWTP 1: 6.23 g/kg (solid), 0.09 g/kg (soluble) WWTP 2: 1.18 g/kg (solid), 0.04 g/kg (soluble)WWTP 3: 4.29 g/kg (solid), 0.02 g/kg (soluble)WWTP 4: 0.24 g/kg (solid), 0.04 g/kg (soluble)Partitioning coefficient calculated by reviewer.
Mass Balance	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The sludge sample sources were reported generally, purity is not required for this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Controls are not required for field studies.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage conditions were reported.

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Study Citation:	Zheng, Z., He, P. J., Fu, Q., Shao, L. M., Lee, D. J. (2008). Partition of six phthalic acid esters in soluble and solid residual fractions of wastewater sludges. Environmental Technology 29(3):343-350.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	675535

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate.
	Metric 6:	Testing Conditions	Medium	Organic content was reported, other characteristics like pH and temperature were not included.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Field studies are assumed to be at equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment measured appropriate media but did not include wastewater measurements for overall partitioning to sludge.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported generally, frequency was not reported and may not reflect temporal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No noteable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; limits of detection and quantification and percent recovery were reported. Raw data was reported. Partition coefficients were calculated by the reviewer.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The partition coefficient was calculated by the reviewer and not reported by the authors. Organic carbon normalized values were not reported.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Zhou, J. L., Liu, Y. P. (2000). Kinetics and equilibria of the interactions between diethylhexyl phthalate and sediment particles in simulated estuarine systems. Marine Chemistry 71(1-2):165-176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5627549

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Diethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Sorption of diethylhexyl phthalate by sediment particles in waters from Conwy estuary, North Wales
Solvent, Reactivity, Storage, Stability	Stock solutions in hexane; NR; Stock solution stored in freezer; NR
Radiolabel, Source, State, Purity	radiolabeled DEHP standard with a specific activity of 10.6 mCi/mmol; Sigma, Dorset, UK; NR; Radiopurity >98% Notes: DEHP
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Marine 8.10; 9.38°C; Not reported; glass centrifuge tubes shaken on an electric shaker for a predetermined period of time tosimulate the dynamic estuarine conditions
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Sediment 1: 1.86% OC, 30% moisture content; Sediment 2: 3.44% OC, 55% moisture content; Not reported
Bulk Density and Matrix Details	Not reported; sediment concentrations 0.10-15.50 g/L
Media, Recovery, and Statistics	seawater salinity 34.5; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; equilibrium reached at 6 hrs; time required to reach equilibrium increased with increasing sediment concentration (SC) from 1 hr at 0.04 g/L SC to 16h at 10.00 g/L SC; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Control experiments were also run with each batch of samples to check for the background radioactivity, the recovery ofsediment particles and total radioactivity; Results show no sign of radioactivity contamination and a good recovery of both the sediment and radioactivityadded throughout the procedures.; sorption increased in proportion to an increase in salinity, from 2E3 mL/g in freshwater to 7.16E3 mL/g in seawater
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	true Koc; mean observed Koc (range); log Koc; 866,273 (sediment 1) and 816571 (sediment 2); 487,651 (319,244-688,172); 5.69
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Koc: organic carbon-normalized partition coefficient; true Koc: true organic carbon-normalized partition coefficient
Mass Balance	Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Controls results not included.
Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported.

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Study Citation:	Zhou, J. L., Liu, Y. P. (2000). Kinetics and equilibria of the interactions between diethylhexyl phthalate and sediment particles in simulated estuarine systems. Marine Chemistry 71(1-2):165-176.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5627549

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test method was applied consistently across study groups.
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sample methods addressed the outcomes of interest and used accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variability and uncertainty were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate, percent recovery and limits of detection were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Sorption calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Zhou, J. L., Rowland, S. J. (1997). Evaluation of the interactions between hydrophobic organic pollutants and suspended particles in estuarine waters. Water Research 31(7):1708-1718.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5541021

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; experimental; other: partition coefficient
Solvent, Reactivity, Storage, Stability	hexane; 10.6 mCi/mmol; NR; NR
Radiolabel, Source, State, Purity	Uniformly labelled in the benzene ring with C-14; Sigma, Dorset, U.K.; liquid; >98% Notes: BEHP
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; Control experiments with sorbents only in water and with organic compounds in water only; not reported
pH, Test Temperature, Buffer, and Test Details	not reported; not reported; not reported; salinity: 0.4%; 23.8%; samples shaken in the dark for 24 hours
Matrix, Clay Silts and Organic Carbon, and CEC	other; organic carbon: 5.71; 9.81%; not reported
Bulk Density and Matrix Details	not reported; SPM: 301.79; 254.46 mg/L
Media, Recovery, and Statistics	suspended material from seawater samples from Humber estuary and river water samples mixed to create different salinities.; not reported; not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	not applicable; not applicable; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; not reported
Partition Coefficient Type and Partition Coefficient Results	Kp; Koc; 40,000-128,000 (from text); 600,000-1,305,000 (from figure and table)
Partition Coefficient Phase and Partition Coefficient Results	suspended solids:water; salinity range from 0.4-23.8%
Mass Balance	concentrations in compartments not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported, and were appropriate for the study.

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Study Citation:	Zhou, J. L., Rowland, S. J. (1997). Evaluation of the interactions between hydrophobic organic pollutants and suspended particles in estuarine waters. Water Research 31(7):1708-1718.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5541021

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.

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Study Citation:	Zhou, J. L., Rowland, S. J. (1997). Evaluation of the interactions between hydrophobic organic pollutants and suspended particles in estuarine waters. Water Research 31(7):1708-1718.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5541021

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Zolfaghari, M., Drogui, P., Brar, S. K., Buelna, G., Dubé, R. (2017). Insight into the adsorption mechanisms of trace organic carbon on biological treatment process. Environmental Technology 38(18):2324-2334.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5493228

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; other: None indicated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich Canada, Ltd. (Oakville, ON, Canada); NR; Analytical grade
Sampling Frequency, Sampling Details, and Number of Replicates	0, 0.5, 1; 2, 3, 4, 5, 6, 12 and 24 h; Supernatant was analyzed in activated in and deactivated sludge; Duplicates
pH, Test Temperature, Buffer, and Test Details	7.4±0.2; 22±2°C; Not reported; Initial concentration: 500 µg/L
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; C/N/P ratio of 100/4/0.7; Not reported
Bulk Density and Matrix Details	Not reported; Activated sludge used in this project was synthetically produced by the constant growth of microorganism culture
Media, Recovery, and Statistics	VS/TS ratio was 0.57 and 0.7, mercury sulfate used; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Equilibration time: >4 hours; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Adsorption to sludge and humic acid (HA)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K1: 1st order (sludge) and K2: 2nd order (HA); K1 = 2.53 (1/h), R^2 = 88.1%; K2 = 0.9 (g.h/mg), R^2 = 97.7%; Not reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Calculated Log Koc; DEHP to sludge Log Koc: 3.4; DEHP to humic acid Log Koc: 3.68
Partition Coefficient Phase and Partition Coefficient Results	solids-water in soil; Activated sludge increased adsorption capacity by 4.6%
Mass Balance	Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A negative control without sludge was used to monitor volatilization.
	Metric 4:	Test Substance Stability	Medium	Some of the details regarding the test substance preparation were not reported but the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Zolfaghari, M., Drogui, P., Brar, S. K., Buelna, G., Dubé, R. (2017). Insight into the adsorption mechanisms of trace organic carbon on biological treatment process. Environmental Technology 38(18):2324-2334.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5493228

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	Medium	There were no reported differences among the study groups but the number of study groups used was not reported.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were not reported in the measurements which may have impacted the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations at each sampling interval were not reported; however, the omission is unlikely to have had a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not clearly reported but the omission is unlikely to have had a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Armstrong, D. L., Rice, C. P., Ramirez, M., Torrents, A. (2018). Fate of four phthalate plasticizers under various wastewater treatment processes. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 53(12):1075-1082.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4829336

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	d4-DEHP (99.7%); Sigma Aldrich (St. Louis, MO, USA); NR; 99.7% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	wastewater and sludge sample analysis to evaluate fate of target chemicals; Treatment system configurations reported for each plant in document; Not applicable
System Type Design	WWTPs #1-4 use anaerobic digestion for sludge treatment; WWTPs #5-6 use aerobic processes
Sampling Frequency and Sampling Details	Not specified; wastewater influent and effluent, and sludge sampled
Test Temperature	Reported plant treatment processing temperatures ranged from 30-38C
Results Details	% change in WWTP #1: NS (Anaerobic Digestion Effluent), +130% (final solids), #2: NS (Anaerobic Digestion Effluent), NS (final solids); #3: NS (Thermal Hydrolysis Effluent), +80.7% (Anaerobic Digestion), NS (final solids); #4: +107% (Anaerobic Digestion Effluent), NS (final solids); #5: -35% (Anaerobic Digestion Effluent), NS (final solids); #6: -77.6% (Anaerobic Digestion Effluent), NS (final solids); NS = change in concentration not significant and, thus, not calculated. DEHP was readily degraded in aerobic treatments; anaerobic digestion resulted in either no significant change or an increase in concentration, in the case of more advanced anaerobic processes (thermal hydrolysis pretreatment and a two-phase acid/gas process).
Analytical Method and Analytical Details	Ultra High Performance Liquid Chromatograph; Details and method detection limits (MDLs) cited to a previous publication
Transformation Products, Statistics, and Kinetics	Not applicable; Standard deviation reported for concentration measurements; Not applicable
Reference Substance and Reference Substance Results	Each extraction batch consisted of a blank and a spiked sample for recovery calculations.; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Test substance analytical standards were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included and presumably were within a valid range.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	N/A	This metric is not applicable to this type of study.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.

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Study Citation:	Armstrong, D. L., Rice, C. P., Ramirez, M., Torrents, A. (2018). Fate of four phthalate plasticizers under various wastewater treatment processes. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 53(12):1075-1082.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4829336

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited analytical detail reported; cited to previous publication.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	This metric met the criteria for medium confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable based on the reported data.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Asakura, H., Matsuto, T., Tanaka, N. (2007). Analytical study of endocrine-disrupting chemicals in leachate treatment process of municipal solid waste (MSW) landfill sites. Environmental Sciences 14(2):79-87.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698293

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field study; Field study
Solvent, Reactivity, Storage, Stability	extracted with hexane; NR; sealed brown glass bottles; bottled prewashed 2x with acetone and dichloromethane; NR
Radiolabel, Source, State, Purity	NA; 5 facilities treating leachate form municipal solid waste landfills; Liquid; NA Notes: source and purity of analytical standards not reported
Test Method Details, Test Condition Details, and Test Consistency Details	Samples taken at different treatment stages of 5 facilities, from May 2000 - Oct 2001, Sept 2000 - Nov 2001, Aug 2002, Oct 2002, and Feb 2003; Landfill wastes were typically ash, incombustible, bulky wastes; some facilities also treated business, industrial, and household waste; Samples were collected, prepared, and analyzed in the same way
System Type Design	Sequential first aeration treatment (sites 1-5), biological treatment (sites 2-5), coagulation and sedimentation (sites 1-5) and activated carbon adsorb (site 4)
Sampling Frequency and Sampling Details	4 times, 4 times, 1 time, 1 time, and 1 time per facility respectively; Leachate collected from the surface with a stainless steel bucket or ladle
Test Temperature	Influent: 16, 22, 18, 16, and 15°C1st aeration: 20, 23, 19, 17, and 15°Cbiological treatment: NA, 22, 19, 17, and 15°CCS treatment: 15, 22, 19, 17, and 15°CACA treatment: NA, NA, NA, 18, and NA°C
Results Details	Influent (max): 56 µg/L1st aeration (max): 62 µg/Lbiological treatment (max): 23 µg/LCS treatment (max): 77 µg/LACA treatment (max): 12 µg/L
Analytical Method and Analytical Details	GC-MS; Detection limit: 0.2 µg/L
Transformation Products, Statistics, and Kinetics	Not reported; Influent (median): 18 ug/L1st aeration (median): 12 ug/Lbiological treatment (median): 16 ug/LCS treatment (median): 11 ug/LACA treatment (median): 12 ug/L; Not reported
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	A general description of the test substance source was provided, and purity is not an applicable metric for field studies; the source and purity of analytical standards was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Concurrent negative controls not required for field studies.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Sample characteristics were analyzed and reported and were appropriate for the study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across sample groups.

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Study Citation:	Asakura, H., Matsuto, T., Tanaka, N. (2007). Analytical study of endocrine-disrupting chemicals in leachate treatment process of municipal solid waste (MSW) landfill sites. Environmental Sciences 14(2):79-87.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698293

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study used sampling methods that are accept abed and address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Reported sources of variability were not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Target chemical concentrations and mass balance were reported; extraction efficiency was not reported but is not expected to have a significant impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods applied to the datasets were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Balabanic, D., Hermosilla, D., Merayo, N., Klemencic, A. K., Blanco, A. (2012). Comparison of different wastewater treatments for removal of selected endocrine-disruptors from paper mill wastewaters. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 47(10):1350-1363.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1322111

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Panreac; NR; analytical grade
Test Method Details, Test Condition Details, and Test Consistency Details	Test substance monitoring to evaluate removal from papermill wastewaters by advanced oxidation processes (AOPs); Two pilot plants running in parallel with wastewaters from a mill producing 100% recycled paper; No inconsistencies noted
System Type Design	Pilot plant A had a biological double-step process (anaerobic + aerobic) followed by ultrafiltration and reverse osmosis filtration; Pilot plant B had anaerobic reactor followed by a membrane bioreactor and a reverse osmosis filtration
Sampling Frequency and Sampling Details	Samples were collected before and after every step of treatment. repeated three times for each pilot plant and each AOP treatment every 2-4 days; Samples collected in 2.5 L glass bottles for the analyses of COD and test substance
Test Temperature	Not applicable
Results Details	70% anaerobic, 80% aerobic, 95% ultrafiltration, 100% reverse osmosis, 95% membrane bioreactor (approx.)
Analytical Method and Analytical Details	GC-MS; samples extracted from the wastewater
Transformation Products, Statistics, and Kinetics	Not reported; % Treatment efficiency reported; Not reported
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test material was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Balabanic, D., Hermosilla, D., Merayo, N., Klemencic, A. K., Blanco, A. (2012). Comparison of different wastewater treatments for removal of selected endocrine-disruptors from paper mill wastewaters. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 47(10):1350-1363.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1322111

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Appropriate for a WWTP removal monitoring study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Benabdallah El-Hadj, T., Dosta, J., Mata-Alvarez, J. (2006). Biodegradation of PAH and DEHP micro-pollutants in mesophilic and thermophilic anaerobic sewage sludge digestion. Water Science and Technology 53(8):99-107.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679120

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluke (Barcelona); NR; 95%
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples collected from anerobic digester to determine hydraulic retention time (HRT) effects on removal efficiency of selected pollutants.; Seed: 3.5 L waste activates sludge from municipal WWTP in the Barcelona metropolitan areaHRT: 26, 22, 18, 12, and 8 dHRT reduced from 30 d to 8 d over 30 wk; Acclimation period to anerobic conditions and adaptation to the mixture of primary and secondary sludge: 80 d
System Type Design	Jacketed 5L anaerobic digester, temperature controlled with two Haake DC 40 heating systems
Sampling Frequency and Sampling Details	Not reported; Samples collected in crystal vessels and stored at - 10°C
Test Temperature	55°C
Results Details	Removal efficiency: 31.7-46.7%; average removal efficiency 46% for HRT 26 - 18d, 32% for HRT 12-8d26 d HRT approx. removal efficiency (influent, effluent): 44% (170 mg/kg dw, 95 mg/kg dw)22 d HRT approx. removal efficiency (influent, effluent): 46% (197 mg/kg dw, 107 mg/kg dw)18 d HRT approx. removal efficiency (influent, effluent): 44% (170 mg/kg dw, 195 mg/kg dw)12 d HRT approx. removal efficiency (influent, effluent): 31% (160 mg/kg dw, 110 mg/kg dw)8 d HRT approx. removal efficiency (influent, effluent): 31% (160 mg/kg dw, 110 mg/kg dw)
Analytical Method and Analytical Details	GC/MS in SCAN mode, analytes separated on HP-5MS column; Lyophilized samples Soxhlet extracted with DCM:hexane, purified and died on alumina-sodium sulfate column, concentrated under N2 and redissolved in hexane; recovery 85-96%
Transformation Products, Statistics, and Kinetics	Not Reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The pollutant of interest was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the analytical standard was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical blanks or sample collection blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	HRT, temperature, and inoculum source were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Benabdallah El-Hadj, T., Dosta, J., Mata-Alvarez, J. (2006). Biodegradation of PAH and DEHP micro-pollutants in mesophilic and thermophilic anaerobic sewage sludge digestion. Water Science and Technology 53(8):99-107.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679120

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	Medium	Sample frequency/interval was not reported, however sampling methods were acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Removal efficiencies for specific HRTs were only reported graphically, results here were approximated by the reviewer.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, recovery was reported but not limits of detection.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies; average removal efficiencies were reported for HRT ranges were reported however removal efficiencies for specific HRTs were estimated from a graph.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Benabdallah El-Hadj, T., Dosta, J., Mata-Alvarez, J. (2006). Biodegradation of PAH and DEHP micro-pollutants in mesophilic and thermophilic anaerobic sewage sludge digestion. Water Science and Technology 53(8):99-107.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679120

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluke (Barcelona); NR; 95%
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples collected from anerobic digester to determine hydraulic retention time (HRT) effects on removal efficiency of selected pollutants.; Seed: 3.5 L waste activates sludge from municipal WWTP in the Barcelona metropolitan areaHRT: 26, 22, and 18 dHRT reduced from 35 d to 18 d over 13 wk; Acclimation period to anerobic conditions and adaptation to the mixture of primary and secondary sludge: 60 d
System Type Design	Jacketed 5L anaerobic digester, temperature controlled with two Haake DC 40 heating systems
Sampling Frequency and Sampling Details	Not reported; Samples collected in crystal vessels and stored at - 10°C
Test Temperature	35°C
Results Details	Removal efficiency: 21.7-37.8%; average removal efficiency decreased with HRT decrease (10.1% decrease between 26-22 days HRT, 6% decrease between 22 – 18 days HRT)26 d HRT approx. removal efficiency (influent, effluent): 37% (170 mg/kg dw, 107 mg/kg dw)22 d HRT approx. removal efficiency (influent, effluent): 29% (197 mg/kg dw, 140 mg/kg dw)18 d HRT approx. removal efficiency (influent, effluent): 21% (170 mg/kg dw, 135 mg/kg dw)
Analytical Method and Analytical Details	GC/MS in SCAN mode, analytes separated on HP-5MS column; Lyophilized samples Soxhlet extracted with DCM:hexane, purified and died on alumina-sodium sulfate column, concentrated under N2 and redissolved in hexane; recovery 85-96%
Transformation Products, Statistics, and Kinetics	Not Reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The pollutant of interest was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the analytical standard was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical blanks or sample collection blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	HRT, temperature, and inoculum source were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				

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Study Citation:	Benabdallah El-Hadj, T., Dosta, J., Mata-Alvarez, J. (2006). Biodegradation of PAH and DEHP micro-pollutants in mesophilic and thermophilic anaerobic sewage sludge digestion. Water Science and Technology 53(8):99-107.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679120

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	Medium	Sample frequency/interval was not reported, however sampling methods were acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Removal efficiencies for specific HRTs were only reported graphically, results here were approximated by the reviewer.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, recovery was reported but not limits of detection.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies; average removal efficiencies were reported for HRT ranges were reported however removal efficiencies for specific HRTs were estimated from a graph.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Berardi, C., Fibbi, D., Coppini, E., Renai, L., Caprini, C., Scordo, C. V. A., Checchini, L., Orlandini, S., Bruzzoniti, M. C., Del Bubba, M. (2019). Removal efficiency and mass balance of polycyclic aromatic hydrocarbons, phthalates, ethoxylated alkylphenols and alkylphenols in a mixed textile-domestic wastewater treatment plant. Science of the Total Environment 674(Elsevier):36-48.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5119787

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; NA; NR
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: Reference standard: obtained from Sigma-Aldrich, St. Louis, MO, USA and LGC, Teddington, UK
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples collected from a WWTP in Prato, Italy; Plant treats industrial-domestic mixed wastewater from the textile district, 50,000 - 130,000 m^3; Mixed liquor suspended solids: 5.5 g/L
System Type Design	Wastewater lifting, grilling, grit removal, primary settling (sludge thickening, sludge dewatering, incineration), biological oxidation, secondary settling, clariflocculation, ozonation
Sampling Frequency and Sampling Details	2 weeks in the summer 2011; involved both the water and the sludge treatment lines.
Test Temperature	24.4-31.6°C (range of daily mean temperatures in aeration tank)
Results Details	Average removal efficiency (range): 96.7% (90.4% - 99.8%)Average influent water and particulate matter (range): 136 µg/L (75 - 235 µg/L)Average effluent (range): 27 µg/L (0.27 - 8.7 µg/L)Primary settling sludge (aqueous, solid fraction): 11, 3038 µg/L Secondary settling sludge (aqueous, solid fraction): 4.6, 681 µg/LSludge from clarification (aqueous, solid fraction): 3.3, 89 µg/LWater from sludge dewatering: 82 µg/LFume scrubber water: 1.15 µg/LAsh: 0.022 mg/kg
Analytical Method and Analytical Details	GC-MS; method detection limit 0.07 - 269 ng/L (aqueous), 0.05 - 3231 ng/g (solid); Aqueous phase samples extracted by EPA 3535A SPE method; Solid samples extracted by EPA 3550C ultrasound assisted method
Transformation Products, Statistics, and Kinetics	Not reported; One-way ANOVA with Games-Howell nonparametric contrast test carried out with the statistical package Minitab 17.1.0; Not applicable
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source from WWTPs was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical and field blanks were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample extraction methods followed EPA guidelines.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Berardi, C., Fibbi, D., Coppini, E., Renai, L., Caprini, C., Scordo, C. V. A., Checchini, L., Orlandini, S., Bruzzoniti, M. C., Del Bubba, M. (2019). Removal efficiency and mass balance of polycyclic aromatic hydrocarbons, phthalates, ethoxylated alkylphenols and alkylphenols in a mixed textile-domestic wastewater treatment plant. Science of the Total Environment 674(Elsevier):36-48.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5119787

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	WWTP operational stages were reported but operational parameters like HRT were not reported and may be in supplemental information.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment allowed for the determination of removal efficiency.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not reported and may be in supplemental information; sample locations and frequency were appropriate to address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Influent and effluent samples accounted for aqueous and suspended matter phases. No other notable uncertainties were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; limits of detection and extraction efficiency was reported. Raw influent and effluent data reported, but not per WWTP operational stage (only reported for PAES as a class).
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were reported and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable and comparable to previous studies however without WWTP operational conditions (HRT, SRT, etc.) broader conclusions cannot be drawn from the result.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 10. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying, autotroph trophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.054/h, 0.048/h, 0.021/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.993, 0.998, 0.970 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.021/h to 0.054/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 6. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying, autotroph trophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.066/h, 0.057/h, 0.029/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.977, 0.996, 0.892 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.029/h to 0.066/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 3. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying, autotroph trophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.016/h, 0.012/h, 0.007/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.852, 0.956, 0.917 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.007/h to 0.016/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 10. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.043/h, 0.039/h, 0.012/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.993, 0.984, 0.952 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.012/h to 0.043/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 6. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.053/h, 0.048/h, 0.024/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.994, 0.980, 0.885 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.024/h to 0.053/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing sludge was fed mixed leachate.; mixed leachate: Carbon/nitrogen ratio adjusted to 3. Feed DEHP concentration was 1.0 mg/L. Bacteria community included: heterotrophic, heterotrophic nitrifying bacteria.; pH of 7.5 and dissolved oxygen in reactor of 5 mg/L or more.
System Type Design	Solid retention time was varied (90 d, 15 d, 5 d)
Sampling Frequency and Sampling Details	regularly monitored; appropriate
Test Temperature	room temperature
Results Details	biodegradation rate constant: 0.013/h, 0.007/h, 0.006/h for SRT 90 d, 15 d, 5 d, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) followed by their analyses using GC and GC/MS.; Analytical details are referenced
Transformation Products, Statistics, and Kinetics	not reported; R2 0.990, 0.982, 0.901 for SRT 90 d, 15 d, 5 d, respectively.; Increased SRT from 5 to 90 days resulted in increased degradation rate from 0.006/h to 0.013/h
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source were reported.

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Study Citation:	Boonnorat, J., Chiemchaisri, C., Chiemchaisri, W., Yamamoto, K. (2016). Kinetics of phenolic and phthalic acid esters biodegradation in membrane bioreactor (MBR) treating municipal landfill leachate. Chemosphere 150:639-649.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350322

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Kanyatrakul, A., Prakhongsak, A., Honda, R., Panichnumsin, P., Boonapatcharoen, N. (2019). Effect of hydraulic retention time on micropollutant biodegradation in activated sludge system augmented with acclimatized sludge treating low-micropollutants wastewater. Chemosphere 230:606-615.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5494471

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Samples were collected from influent, anoxic water, aerobic water, and effluent of biaugmented systems.; Seed sludge: BOD: <50mg/L; COD: 200mg/L; NH3-N: <40mg/L. Acclimated sludge: BOD: >800mg/L; COD: >1200 mg/L; NH3-N: >100mg/L.; Not reported
System Type Design	Two stage activated sludge system (10L acrylic anoxic tank and 10L aerobic tank). Seed sludge from a local wastewater treatment plant was used as well as acclimatized sludge.
Sampling Frequency and Sampling Details	Sampling periods were S1: days 0-63, S2: days 64-119, and S3: days 120-182.; Hydraulic retention times in S1, S2, and S3 sampling periods were 24, 18, and 12 hours, respectively.
Test Temperature	Not reported
Results Details	Removal % in S1, S2 and S3 conditions: 87%, 87%, and 71%, respectively.
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; No significant differences in biodegradation rates were found between 24h and 18h; however, there was a significant difference between the 18h and 12h, as well as the 24h and 12h HRT biodegradation rates.; First order rate: ln(C/Co) = kt. K values (hour^-1) for S1, S2, and S3 conditions were -0.06562, -0.0651, and -0.0758, respectively.
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No study controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the preparation, storage, and homogeneity of the samples containing the test substance were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				

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Study Citation:	Boonnorat, J., Kanyatrakul, A., Prakhongsak, A., Honda, R., Panichnumsin, P., Boonapatcharoen, N. (2019). Effect of hydraulic retention time on micropollutant biodegradation in activated sludge system augmented with acclimatized sludge treating low-micropollutants wastewater. Chemosphere 230:606-615.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5494471

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	Besides the hydraulic retention time, there were no reported differences in the test conditions across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	The inoculum was acclimated and from a wastewater treatment plant.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not clearly described; however, this is unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Some of the details regarding the sampling method were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the measurements and was not likely to influence the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Boonnorat, J., Techkarnjanaruk, S., Honda, R., Prachanurak, P. (2016). Effects of hydraulic retention time and carbon to nitrogen ratio on micro-pollutant biodegradation in membrane bioreactor for leachate treatment. Bioresource Technology 219:53-63.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3466805

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing acclimated (60 d) sludge was fed mixed leachate. 120 d study duration.; mixed leachate: Carbon/nitrogen ratio adjusted to 10. Feed DEHP concentration was 963 ug/L. Initial mixed liquor suspended solids 7 g/L.; Triplicate batch, pH of 7±0.2 and dissolved oxygen in reactor of 5 mg/L
System Type Design	hydraulic retention time was varied (24 h, 12 h, 6 h)
Sampling Frequency and Sampling Details	not reported; Not Reported
Test Temperature	room temperature
Results Details	94.6, 89.8, 77.3% degradation at HRT times of 24, 12, 6 hours, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) and analyzed by GC–MS; Analytical details referenced
Transformation Products, Statistics, and Kinetics	not reported; Degradation rate constant were 0.052, 0.061, 0.028/h with ammonia oxidizing bacteria (AOB) and 0.042, 0.053, 0.019/h without AOB at HRT of 24, 12, 6 hours, respectively; DEHP initial concentrations of 963 ug/L were reduced to 52 and 218 ug/L under HRT times of 24 and 6 hours, respectively
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Boonnorat, J., Techkarnjanaruk, S., Honda, R., Prachanurak, P. (2016). Effects of hydraulic retention time and carbon to nitrogen ratio on micro-pollutant biodegradation in membrane bioreactor for leachate treatment. Bioresource Technology 219:53-63.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3466805

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Boonnorat, J., Techkarnjanaruk, S., Honda, R., Prachanurak, P. (2016). Effects of hydraulic retention time and carbon to nitrogen ratio on micro-pollutant biodegradation in membrane bioreactor for leachate treatment. Bioresource Technology 219:53-63.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3466805

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Membrane bioreactor containing acclimated (60 d) sludge was fed mixed leachate. 120 d study duration.; mixed leachate: Carbon/nitrogen ratio adjusted to 6. Feed DEHP concentration was 963 ug/L. Initial mixed liquor suspended solids 7 g/L.; Triplicate batch, pH of 7±0.2 and dissolved oxygen in reactor of 5 mg/L.
System Type Design	hydraulic retention time was varied (24 h, 12 h, 6 h)
Sampling Frequency and Sampling Details	not reported; appropriate
Test Temperature	room temperature
Results Details	96.3, 96.5, 85.6% degradation at HRT times of 24, 12, 6 hours, respectively
Analytical Method and Analytical Details	solid phase extraction technique (SPE) and analyzed by GC–MS; Analytical details referenced
Transformation Products, Statistics, and Kinetics	not reported; Degradation rate constant were 0.061, 0.068, 0.032/h with ammonia oxidizing bacteria (AOB) and 0.052, 0.060, 0.023/h without AOB at HRT of 24, 12, 6 hours, respectively; DEHP initial concentrations of 963 ug/L were reduced to 35 and 138 ug/L under HRT times of 24 and 6 hours, respectively
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				

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Study Citation:	Boonnorat, J., Techkarnjanaruk, S., Honda, R., Prachanurak, P. (2016). Effects of hydraulic retention time and carbon to nitrogen ratio on micro-pollutant biodegradation in membrane bioreactor for leachate treatment. Bioresource Technology 219:53-63.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3466805

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Bove, J. L., Dalven, P. (1984). Pyrolysis of phthalic-acid esters: Their fate. Science of the Total Environment 36(JUN):313-318.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1333380

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Company; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	7.5-10 minute in a 22 ml stainless steel bomb with an asbestos/copper gasket; heated in a muffle furnace; 5 runs, differences in the trials reported
System Type Design	pyrolysis of 80 mg DEHP
Sampling Frequency and Sampling Details	1 time; extracted with 50 ml of boiling benzene
Test Temperature	600°C
Results Details	DEHP removed and several transformation products listed
Analytical Method and Analytical Details	GC/MS; Not applicable
Transformation Products, Statistics, and Kinetics	20 compounds characterized and another 20 not identified. Identified chemicals include: Methylindene, Naphthalene, 1-Methylnaphthalene, 2-Methylnaphthalene, Biphenyl, Dimethylnaphthalene, Acenaphthene, Fluorene, Methylacenaphthene, Methylfluorene, Phenanthrene, Anthracene, Methylphenanthrene, Methylanthracene, Pyrene, Methylpyrene, and Triphenylene.; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	Medium	There was some information not reported regarding the test system and design, but these omissions were not likely to have impacted the study result.
Domain 4: Test Organisms				

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Study Citation:	Bove, J. L., Dalven, P. (1984). Pyrolysis of phthalic-acid esters: Their fate. Science of the Total Environment 36(JUN):313-318.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1333380

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods; however, the absence of details were likely to have an impact on the study results.
	Metric 12:	Test Substance Purity	Medium	There was some information not reported regarding the sampling methods, but these omissions were not likely to have impacted the study result.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Recovery of reaction products was poor and was a source of variability and uncertainty in the measurements.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Quantitative results pyrolysis products were not provided.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Data and calculations were not presented.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Cadogan, D., Howick, C. (2000). Plasticizers.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6311430

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	Not reported; Not reported; Not reported; Not reported Notes: Not reported
Test Method Details, Test Condition Details, and Test Consistency Details	DEHP concentrations were measured in the influent and effluent of wastewater treatment plants in Germany, Sweden, and the Netherlands.; Not reported; Not reported
System Type Design	Not reported
Sampling Frequency and Sampling Details	Not reported; Not reported
Test Temperature	Not Reported
Results Details	DEHP concentrations in influents (µg/L): 1-167; DEHP concentrations in effluents (µg/L): <1-36.8 µg/L.
Analytical Method and Analytical Details	Not reported; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The study did not require concurrent control groups.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method was not reported or not suitable for the test substance. These deviations or lack of information resulted in serious flaws that make the study unusable.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results.
Metric 7:	Testing Consistency	N/A	Not applicable to this study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			

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Study Citation:	Cadogan, D., Howick, C. (2000). Plasticizers.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6311430

Domain		Metric	EVALUATION Rating	Comments
	Metric 9:	Outcome Assessment Methodology	Uninformative	The test organism, species, or inoculum source were not reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Target chemical concentrations were not reported at each individual wastewater treatment plant.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Cited to: Phthalate in der Aquatischen Umwelt, Report No. 6/93, Landesamt fur Wasser und Abfall Nordrhein-Westfalen, Dusseldorf, Germany, 1993.

Study Citation:	Cheng, H. F., Chen, S. Y., Lin, J. G. (2000). Biodegradation of di-(2-ethylhexyl) phthalate in sewage sludge. Water Science and Technology 41(12):1-6.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1336680

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; RDH Chemicals, Germany; NR; 99%
Test Method Details, Test Condition Details, and Test Consistency Details	DEHP degradation was measured in sludge from the Min-Shen sewage treatment plant.; Land-simulated experiments were done with initial DEHP concentration of 127.32 mg/kg.; Sludge samples were collected, air-dried for two days, ground and homogenized by passing through a 30-mesh sieve.
System Type Design	DEHP was incubated in 100g sludge in plastic-free containers for 27 weeks.
Sampling Frequency and Sampling Details	Samples were taken weekly.; The most successful trial was done under outdoor conditions with uncontrolled temperature, good ventilation, and sunlight but controlled water.
Test Temperature	Not reported
Results Details	Final DEHP concentrations were 85.43 mg/kg in run 2A (most successful experimental conditions), with 70% of the initial concentration remaining.
Analytical Method and Analytical Details	HP-1800A GCD with MS.; Seven point calibration curve was obtained from a preliminary study for DEHP quantification.
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks and sterilized controls were used.
	Metric 4:	Test Substance Stability	High	The test substance homogeneity and preparation were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Some of the test method details were not reported but the omissions were unlikely to have a substantial impact on the study results.
	Metric 6:	Testing Conditions	Low	Some test conditions were not clearly described which may have an impact on the study results.
	Metric 7:	Testing Consistency	Low	The changes to the testing conditions between study groups were described briefly but not in detail. Also, there was no indication of how many replicates were used in each group. These may have a substantial impact on the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

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Study Citation:	Cheng, H. F., Chen, S. Y., Lin, J. G. (2000). Biodegradation of di-(2-ethylhexyl) phthalate in sewage sludge. Water Science and Technology 41(12):1-6.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1336680

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Some of the details regarding the inoculum type were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods, including timing and frequency, were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the study results; however, the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and the target chemical concentration was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not described but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

* Related References: Cited in HSDB

Study Citation:	Cheng, H., Kumar, M., Lin, J. (2010). Assessment of di-(2-ethylhexyl)phthalate (dehp) removal in a rotating biological contactor and activated sludge process treating domestic wastewater. Separation Science and Technology 45(2):221-227.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5631033

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; extracts from raw sewage and sludge using a combination of SPE and SFE; NR; High purity Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	sewage treatment plant operating with two parallel lines; sewage treated at an operating capacity of 15500 m3/d; Samples of filtered liquid dissolved phase DEHP (DEHPd) and filtrate adsorbed phase DEHP (DEHPa) were analyzed
System Type Design	main line - conventional activated sludge process (ASP) treating sewage flow of 13500 m3/d, secondary line using a rotating biological contactor (RBC) treating 2000 m3/d
Sampling Frequency and Sampling Details	over a 2 yr period; wastewater and sludge samples collected from various stages
Test Temperature	PC: primary clarifier; ASP: activated sludge process; SC: secondary clarifier; RBC: rotary bio-contactor; FC: final clarifier; ASD: aerobic sludge digester; ST: sludge thickener
Results Details	DEHP was not completely removed in any of the treatment units; removal of DEHPd and DEHPa in PC = 29.3% and 23.1%, respectively, in ASP with SC = 14.7% and 32.5%, respectively, removal of DEHPd and DEHPa in RBC = 23.2% and 46.1%, respectively, in FC = 35.4% and 22.5%, respectively, in RBC with FC = 50.4% and 58.2%, respectively, in ASD = 53% and 31%, respectively
Analytical Method and Analytical Details	Solid phase extraction and an optimized supercritical fluid extraction; extracts analyzed via total ion chromatograph; limit of detection and % recovery not reported
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Cheng, H., Kumar, M., Lin, J. (2010). Assessment of di-(2-ethylhexyl)phthalate (dehp) removal in a rotating biological contactor and activated sludge process treating domestic wastewater. Separation Science and Technology 45(2):221-227.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5631033

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Cheng, X., Ma, L., Xu, D., Cheng, H., Yang, G., Luo, M.,in (2015). Mapping of phthalate esters in suburban surface and deep soils around a metropolis-Beijing, China. Journal of Geochemical Exploration 155:56-61.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3022721

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental - monitoring; Calculation - volatilization (not reported); Experimental - monitoring; Calculation - volatilization (not reported)
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Soil from Beijing, China; NR; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Data collected in monitoring study; 47 surface soil samples and core samples and 16 vicinal sub-samples weremixed fully to obtain one composite surface sample; NA
System Type Design	NA
Sampling Frequency and Sampling Details	1 sample time; Not Reported
Test Temperature	NA
Results Details	0.11 ±0.16 mg/kg in surface soil (mean) and 0.08 ±0.16 mg/kg in deep soil; volatility calculated but not reported for DEHP
Analytical Method and Analytical Details	GC-FID; confirmation of the compounds by GC-MSD-EI-SIM
Transformation Products, Statistics, and Kinetics	NR; range, median and mean concentrations reported; NA
Reference Substance and Reference Substance Results	Analytical blank, spiked blank, spiked matrix; Average recoveries of PAEs were 75–130% with the relative standard deviations of 3–13% (n = 5)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	Test purity is not applicable to this study type (monitoring).
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to monitoring studies.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to monitoring studies.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to monitoring studies.

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Study Citation:	Cheng, X., Ma, L., Xu, D., Cheng, H., Yang, G., Luo, M.,in (2015). Mapping of phthalate esters in suburban surface and deep soils around a metropolis-Beijing, China. Journal of Geochemical Exploration 155:56-61.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3022721

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results. Soil transport and volatility can be inferred from these monitoring results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were reported in the study and there is concern that variability or uncertainty was likely to have a substantial impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination **Low**

Study Citation:	Cheng, Z., Li, H. H., Yu, L., Yang, Z. B., Xu, X. X., Wang, H. S., Wong, M. H. (2018). Phthalate esters distribution in coastal mariculture of Hong Kong, China. Environmental Science and Pollution Research 25(18):17321-17329.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728634

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Fish and sediment samples collected from 6 mariculture sites in Hong Kong and China; Surface sediment (0-5 cm; mariculture and non-mariculture) and farmed fish species collected: Red snapper (Lutjanus campechanus) (n = 26), orange spotted grouper (Epinephelus coioides) (n = 26), and snubnose pompano (Trachinotus blochii) (n = 17); Not applicable
System Type Design	Field study
Sampling Frequency and Sampling Details	Not applicable; sampling dates not provided; Sediment samples were collected via a stainless steel grab sampler; fish samples were collected, wrapped in foil, delivered and stored at -20C prior to analysis
Test Temperature	Site specific temperatures not reported
Results Details	Approximate concentrations in mariculture (MS) and nonmariculture (NS) sediment (mg/kg dw) and corresponding concentrations fish samples (mg/kg ww): Site M1: 7 (MS), 2 (NS), 0.53 (snubnose pompano), 0.20 (orange-spotted grouper), 0.11 (red snapper); Site M2: 17 (MS), 12.5 (NS), 0.76 (snubnose pompano), 0.23 (orange-spotted grouper), 0.15 (red snapper); Site H1: ND (MS), <1 (NS), 0.30 (orange-spotted grouper), 0.17 (red snapper); Site H2: 6 (MS), 2 (NS), 0.15 (orange-spotted grouper); Site H3: 2 (MS), 1 (NS), 0.11 orange-spotted grouper), 0.38 (red snapper); Site H4: 8 (MS), 47 (NS), 1.05 (snubnose pompano), 0.23 (orange-spotted grouper), 0.19 (red snapper)
Analytical Method and Analytical Details	Preparation and measurements in sediment and fish samples were conducted following a method in a cited reference.; Analytical details described in Supplementary Materials, only available to authorized users.
Transformation Products, Statistics, and Kinetics	Not applicable; Analysis of the data was performed by two independent t tests, Wilcoxon rank sum test, one-way ANOVA, and Duncan's multiple range test ($p < 0.05$); Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The chemical of interest was identified by name.
	Metric 2:	Test Substance Purity	Low	Field sample sources reported; analytical standard source and purity not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Procedural blanks were not included.
	Metric 4:	Test Substance Stability	Medium	Sample storage and limited preparation details were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The monitoring study method was appropriate for the chemical of interest.
	Metric 6:	Testing Conditions	Medium	No environmental conditions were reported.

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Study Citation:	Cheng, Z., Li, H. H., Yu, L., Yang, Z. B., Xu, X. X., Wang, H. S., Wong, M. H. (2018). Phthalate esters distribution in coastal mariculture of Hong Kong, China. Environmental Science and Pollution Research 25(18):17321-17329.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728634

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	High	Field samples are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	Low	Organism species were reported; specific details were not reported for individual species.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment did not quantify accumulation or report numerical concentrations in sediment.
	Metric 12:	Test Substance Purity	High	Sampling focused on appropriate species with acceptable sample sizes, and processing was appropriate. The same tissues for fish were analyzed across species.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported, detail in SI which was not available.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were reasonable however BCF values were not reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Ebinghaus, R., Xie, Z. (2006). Occurrence and air/sea-exchange of novel organic pollutants in the marine environment. Journal de Physique IV 139:211-237.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1322127

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Diethylhexylphthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Hexane (residue analysis or HPLC grade); NR; NR; NR
Radiolabel, Source, State, Purity	NR; Augsburg, Germany; 5-10 µg of neat chemicals were dissolved in 10mL hexane and diluted to prepare stock solutions.; NR Notes: Stock solutions were remade everything 6 months.
Test Method Details, Test Condition Details, and Test Consistency Details	Air was sampled with a high-volume air sampler holding a PUF/XAD-2 column. Water was sampled from below ships in the Atlantic Ocean and North Sea using an in-situ pump with a glass fiber filter followed by a PAD-2 column.; Not reported; Air samplers located on ships were placed upwind of ships emissions to reduce contamination. If wind speeds were below 3 m/s, sampling was paused.
System Type Design	Blank samples were used to correct air and water concentrations.
Sampling Frequency and Sampling Details	Not reported; Air sampling: flow rate 200 L/min; total volumes 400-1000m^3. Water samples: pump used was a modified Kiel In-Situ Pump (KISP), plastic parts were replaced with glass or stainless steel.
Test Temperature	Water temperatures: 3.8-6.7°C
Results Details	Air-sea vapor exchange flux: -95 to +686 ng/m^2/day (negative value indicates deposition into water)
Analytical Method and Analytical Details	GC-MS (Agilent 6890 N GC-5973 quadrupole mass selective detector); Instrument limit of detection: 1.8 pg. Method limits: sea water (dissolved): 200 pg/L, sea water (total suspended matter): 150 pg/L; air (vapor): 100 pg/m^3; air (particle): 40 pg/m^3
Transformation Products, Statistics, and Kinetics	Not reported; Errors for flux measurements were 45%. DEHP concentration range in North Sea: 0.52-5.3 ng/L. Average vapor phase conc.: 0.29 ng/m^3; average particle phase conc.: 1.0 ng/m^3; Flux = Kol(Cw-Ca/H'), where Kol is the mass transfer coefficient, Cw is the dissolved concentration, Ca is the vapor phase concentration, and H' is the dimensionless Henry's law constant.
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not directly reported but the omission is unlikely to impact the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	All concentration measurements were blank corrected.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were clearly reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were reported and appropriate.

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Study Citation:	Ebinghaus, R., Xie, Z. (2006). Occurrence and air/sea-exchange of novel organic pollutants in the marine environment. Journal de Physique IV 139:211-237.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1322127

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	The system design is appropriate for the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were clearly described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in measurements and was not likely to influence the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate for the study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the results of other cited studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	ECHA, (2009). Data on manufacture, import, export, uses and releases of bis(2-ethylhexyl)phthalate (DEHP) as well as information on potential alternatives to its use.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7325004

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Field samples; wastewater from a large mixed urban area, an industrial area and a mostly residential area; NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; Not Reported
Test Temperature	NR
Results Details	43-99% reduction
Analytical Method and Analytical Details	NR; NR
Transformation Products, Statistics, and Kinetics	NR; calculated average of 76% reduction; NR
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Details were not reported in this gray literature source.
	Metric 6:	Testing Conditions	Low	Details were not reported in this gray literature source.
	Metric 7:	Testing Consistency	Low	Details were not reported in this gray literature source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Details were not reported in this gray literature source.

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Study Citation:	ECHA, (2009). Data on manufacture, import, export, uses and releases of bis(2-ethylhexyl)phthalate (DEHP) as well as information on potential alternatives to its use.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7325004

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details were not reported in this gray literature source.
	Metric 12:	Test Substance Purity	Low	Details were not reported in this gray literature source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details were not reported in this gray literature source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details were not reported in this gray literature source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details were not reported in this gray literature source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Low

* Related References: cites: Hoffmann. 1996. Massestrømsanalyse for phthalater [Substance flow analysis forphthalates]. Miljøprojekt nr. 320. Danish Environmental Protection Agency, Copenhagen.(In Danish)

Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates: Annexes.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7325405

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Not Reported
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	DEHP concentrations were measured in the influent and effluent of wastewater treatment plants in Sweden, Denmark, Norway and Germany; NR; NR
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	DEHP concentrations in influents (µg/L): 4-250; DEHP concentrations in effluents (µg/L): 0.07-28
Analytical Method and Analytical Details	NR; NR
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The analytical method used to detect the test substance was not reported by the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of controls was not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation and storage conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	ECHA, (2012). Committee for Risk Assessment (RAC) Committee for Socio-economic Analysis (SEAC): Background document to the Opinion on the Annex XV dossier proposing restrictions on four phthalates: Annexes.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7325405

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Low	Testing conditions at each wastewater treatment plant were not reported by the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Details regarding the treatment processes were not reported which may have an impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding the sampling methods were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Target chemical concentrations were not reported at each individual wastewater treatment plant.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Fauser, P., Vikelsoe, J., Sorensen, P. B., Carlsen, L. (2003). Phthalates, nonylphenols and LAS in an alternately operated wastewater treatment plant–fate modelling based on measured concentrations in wastewater and sludge. Water Research 37(6):1288-1295.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679494

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; WWTP in Roskilde municipality, Denmark.; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Not reported; Treatment plant used grating, primary settling, a sludge digestion reactor, anaerobic reactors for propagating of phosphorus assimilating bacteria, anoxic denitrifying reactors, aerobic nitrifying reactors, and a secondary settler.; Reported concentrations were corrected by blanks values.
System Type Design	Over a 4h period, the order and/or inclusion of the anoxic denitrifying (D) and aerobic nitrifying (N) reactors was changed.
Sampling Frequency and Sampling Details	Six composite samples were collected daily.; Samples were collected after the intake grate and outlet. 80mL were pumped every half hour for 4h.
Test Temperature	Not reported
Results Details	Influent/effluent removal % (8-day mean): 97.3%. Inlet total (µg/L): 35.4±10.6; outlet total (µg/L): 0.96±0.94.
Analytical Method and Analytical Details	High-resolution GC/MS; DCM extracts were analyzed.
Transformation Products, Statistics, and Kinetics	Not Reported; Uncertainty reported for inlet and outlet concentrations.; t(1/2) of total DEHP removal: 22 hours
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concentrations were corrected using blank samples.
	Metric 4:	Test Substance Stability	High	Some details regarding the storage of the test substance after sampling were not reported but the omission is not likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were not reported.
	Metric 7:	Testing Consistency	High	No differences between sampling groups were reported.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				

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Study Citation:	Fauser, P., Vikelsoe, J., Sorensen, P. B., Carlsen, L. (2003). Phthalates, nonylphenols and LAS in an alternately operated wastewater treatment plant–fate modelling based on measured concentrations in wastewater and sludge. Water Research 37(6):1288-1295.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679494

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	Medium	The treatment process was described sufficiently but some details were not reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for the endpoint of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in the measurements.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The mass balances were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on reported results from other studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Fauser, P., Vikelsoe, J., Sorensen, P. B., Carlsen, L. (2009). Fate modelling of DEHP in roskilde fjord, Denmark. Environmental Modeling and Assessment 14(2):209-220.
OECD Harmonized Template:	Miscellaneous
HERO ID:	719150

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; calculation; calculation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Roskilde fjord, Denmark.; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Model of DEHP spatial and temporal flow trends in Roskilde fjord evaluated both theoretically and with experimental measurements (monitoring results); Biodegradation, sorption, sedimentation, vertical transport in the sediment and horizontal transport in the water evaluated; sources of DEHP included WWTP, freshwater, atmospheric deposition, and leaching from soil; NR
System Type Design	NR
Sampling Frequency and Sampling Details	Not applicable; Not Reported
Test Temperature	NA
Results Details	The main removal process of DEHP from the water compartment is sedimentation. Degradation and transport to the surrounding sea are of lesser significance for DEHP removal from water. The main source of DEHP is freshwater from streams, followed by atmospheric deposition and discharges from wastewater treatment plants. The study reports: "The model requires a set of predefined processes and parameters that are valid for the specific conditions represented by Roskilde fjord. These conditions are highly influential on the model result."
Analytical Method and Analytical Details	NA; NA
Transformation Products, Statistics, and Kinetics	NR; NA; Steady-State Box Model for Water Compartment described
Reference Substance and Reference Substance Results	Not applicable; experimental data are used to calibrate the model; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The calculation method was outlined.
	Metric 6:	Testing Conditions	N/A	This metric is not applicable to this type of study.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	Medium	The modelling design took a variety of environmental factors into consideration.

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Study Citation:	Fauser, P., Vikelsoe, J., Sorensen, P. B., Carlsen, L. (2009). Fate modelling of DEHP in roskilde fjord, Denmark. Environmental Modeling and Assessment 14(2):209-220.
OECD Harmonized Template:	Miscellaneous
HERO ID:	719150

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Assessment methodology was outlined.
	Metric 12:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables that could effect uncertainty and model limitations were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; Sterile glass vials; NR
Radiolabel, Source, State, Purity	NR; Wastewater sample; Liquid; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	AST with biological nutrient removal using activated sludge; HRT 13 h; Test material concentration: 3471 ng/L; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	1 influent and effluent sample; April 26, 2005 - Samples: sediment (influent: primary sedimentation) and water (effluent: final outfall)
Test Temperature	Not Reported
Results Details	By test mat. analysis: 75% reduction; Influent: 3,471 ng/L Effluent: 869 ng/L
Analytical Method and Analytical Details	gas chromatography/high-resolution mass spectrometry; Included blanks, duplicates run with each batch of 10 samples; recovery: $>$ 70% for standard (Di-n-octylphthalate-d4)
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was determined analytically by GC-MS.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank with vehicle (e.g., oil or carrier solvent) was included and the vehicle was not likely to influence the study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were some omissions in testing conditions, however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.

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Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and are routinely used for similar study types and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported (i.e., the sampling intervals were such that a half-life or other rate could be determined and/or pathways could be defined); however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical percent recovery or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; Sterile glass vials; NR
Radiolabel, Source, State, Purity	NR; Wastewater sample; Liquid; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	AST with biological nutrient removal using activated sludge; HRT 8 h; Test material concentration: 9960 ng/L; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	1 influent and effluent sample; April 26, 2005 - Samples: sediment (influent: primary sedimentation) and water (effluent: final outfall)
Test Temperature	Not Reported
Results Details	By test mat. analysis: -72% reduction; Increased concentration in effluent not explained; Influent: 9,960 ng/L Effluent: 17,092 ng/L
Analytical Method and Analytical Details	gas chromatography/high-resolution mass spectrometry; Included blanks, duplicates run with each batch of 10 samples; recovery: $>$ 70% for standard (Di-n-octylphthalate-d4)
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was determined analytically by GC-MS.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank with vehicle (e.g., oil or carrier solvent) was included and the vehicle was not likely to influence the study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were some omissions in testing conditions, however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.

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Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and are routinely used for similar study types and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported (i.e., the sampling intervals were such that a half-life or other rate could be determined and/or pathways could be defined); however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical percent recovery or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; Sterile glass vials; NR
Radiolabel, Source, State, Purity	NR; Wastewater sample; Liquid; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	AST with biological nutrient removal using activated sludge; HRT 17 h; Test material concentration: 5217 ng/L; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	1 influent and 3 effluent sample; Samples: sediment and water; influent: March 5, 2004; Effluent: March 5, 22, and 25, 2004
Test Temperature	Not Reported
Results Details	By test mat. analysis: 29% reduction; Influent: 5,217 ng/L Effluent 1: 4,089 ng/L Effluent 2: 5,091 ng/L Effluent 3: 3,704 ng/L
Analytical Method and Analytical Details	gas chromatography/high-resolution mass spectrometry; Included blanks, duplicates run with each batch of 10 samples; recovery: $>$ 70% for standard (Di-n-octylphthalate-d4)
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was determined analytically by GC-MS.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank with vehicle (e.g., oil or carrier solvent) was included and the vehicle was not likely to influence the study results.
	Metric 4:	Test Substance Stability	High	The test substance preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were some omissions in testing conditions, however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.

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Study Citation:	Fernandez, M. P., Ikonomou, M. G., Buchanan, I. (2007). An assessment of estrogenic organic contaminants in Canadian wastewaters. Science of the Total Environment 373(1):250-269.
OECD Harmonized Template:	Miscellaneous
HERO ID:	679499

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and are routinely used for similar study types and appropriate.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported (i.e., the sampling intervals were such that a half-life or other rate could be determined and/or pathways could be defined); however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical percent recovery or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Gani, K. M., Bux, F., Kazmi, A. A. (2019). Diethylhexyl phthalate removal in full scale activated sludge plants: Effect of operational parameters. Chemosphere 234:885-892.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5496087

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Diethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Aldrich, Germany; NR; 99.5% Notes: Standard solution.
Test Method Details, Test Condition Details, and Test Consistency Details	Two wastewater treatment plants in Haridwar, India were studied to measure.; Chemical oxygen demand, biochemical oxygen demand, nitrogen and phosphorus species, suspended and volatile solids, and oxygen uptake rate were determined in each plant.; Samples were not collected after significant rainfall events. 2L samples were stored at 4°C.
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Samples were collected roughly monthly for one year.; 2L samples were collected
Test Temperature	Not reported
Results Details	Overall DEHP removal at MLSS 1692-3296mg/L: 62±8%; At MLSS 3461-4972 mg/L: 92±6%.
Analytical Method and Analytical Details	GC-MS; Helium carrier gas (98% pure).
Transformation Products, Statistics, and Kinetics	Not reported; Decreasing food to microorganism ratio was significantly correlated to increasing DEHP removal percentage (r^2=0.852).; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was collected from field samples and standard solutions of high purity were used.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Quality controls were reported in a separate study.
	Metric 4:	Test Substance Stability	Medium	The homogeneity of the test samples was not reported, but the storage conditions were otherwise appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sampling groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

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Study Citation:	Gani, K. M., Bux, F., Kazmi, A. A. (2019). Diethylhexyl phthalate removal in full scale activated sludge plants: Effect of operational parameters. Chemosphere 234:885-892.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5496087

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type was described and was appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported and not likely to have an impact the outcome.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Concentrations of the target chemical were not reported, but overall removals were reported with acceptable uncertainties.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were comparable to other reported removal rates.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Gani, K. M., Kazmi, A. A. (2016). Comparative assessment of phthalate removal and risk in biological wastewater treatment systems of developing countries and small communities. Science of the Total Environment 569-570:661-671.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350189

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; 4°C in amber glass bottles; NR
Radiolabel, Source, State, Purity	NA; 3 WWTPs in India; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Study collected influent and effluent samples from WWTPs in India to determine removal efficiency and seasonal influences to removal of the test substance.; HRT: 11 hoursSRT: 12 - 27 dCycle time: 3 hr; Not reported
System Type Design	Sequencing batch reactor system: grit chamber, primary settling tank (thickener, excess sludge, digester, sludge drying bed), bioselector, aeration basin, final effluent
Sampling Frequency and Sampling Details	October 2014 to September 2015, monthly; Samples collected from untreated sewage sump., outlet of primary settling tank and bioreactor; sludge samples collected from sludge wastage flow line. Samples collected directly with storage bottles or stainless steel buckets
Test Temperature	Winter (November to March): 18±4°C
Results Details	Test substance removal fate:Sorption: approx. 10%Biotransformation: approx. 70%Effluent: approx. 20%November - March percentage removal: approx. -38% to 82%April - October percentage removal: approx. 35% to 95
Analytical Method and Analytical Details	Varian 450 GC with Varian 240 MS; LOD 0.084 ug/L, LOQ 0.241 ug/L; Liquid samples extracted 3x following US EPA method 606, into hexane:DCM, dried with anhydrous sodium sulfate, concentrated, and cleaned by column; sludge samples extracted on rotary shaker into n-hexane:DCM, filtered, and concentrated; 80% recovery
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not applicable
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported, the analytical standard source and purity was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks were included, field blanks were not explicitly included.
Metric 4:	Test Substance Stability	High	Sample preparation and storage conditions were reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	WWTP operational stages and conditions were reported.
Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.

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Study Citation:	Gani, K. M., Kazmi, A. A. (2016). Comparative assessment of phthalate removal and risk in biological wastewater treatment systems of developing countries and small communities. Science of the Total Environment 569-570:661-671.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350189

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty in the measurements was addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Data was primarily reported graphically, values are estimated from the figures. Limit of detection, limit of quantification, and percent recovery were reported, the analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not explicitly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable and trends were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Gani, K. M., Kazmi, A. A. (2016). Comparative assessment of phthalate removal and risk in biological wastewater treatment systems of developing countries and small communities. Science of the Total Environment 569-570:661-671.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350189

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; 4°C in amber glass bottles; NR
Radiolabel, Source, State, Purity	NA; 3 WWTPs in India; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Study collected influent and effluent samples from WWTPs in India to determine removal efficiency and seasonal influences to removal of the test substance.; HRT in UASB: 10.2 hoursHRT in polishing pond: 24 hr; Not reported
System Type Design	Up flow anaerobic sludge blanket, post treatment by polishing pond: grit chamber, UASB (sludge sump, sludge drying bed), polishing pond, final effluent
Sampling Frequency and Sampling Details	October 2014 to September 2015, monthly; Samples collected from untreated sewage sump., outlet of primary settling tank and bioreactor; sludge samples collected from sludge wastage flow line. Samples collected directly with storage bottles or stainless steel buckets
Test Temperature	Winter (November to March): 18±4°C
Results Details	Test substance removal fate (UASB):Sorption: approx. 22%Biotransformation: approx. 35%Effluent: approx. 43%Overall removal with pond: approx. 57%November - March UASB percentage removal: approx. -20% to 100%April - October UASB percentage removal: approx. 20% to 65%November - March Pond percentage removal: approx. 20% to 80%April - October Pond percentage removal: approx. 25% to 90
Analytical Method and Analytical Details	Varian 450 GC with Varian 240 MS; LOD 0.084 ug/L, LOQ 0.241 ug/L; Liquid samples extracted 3x following US EPA method 606, into hexane:DCM, dried with anhydrous sodium sulfate, concentrated, and cleaned by column; sludge samples extracted on rotary shaker into n-hexane:DCM, filtered, and concentrated; 80% recovery
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not applicable
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported, the analytical standard source and purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical blanks were included, field blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	WWTP operational stages and conditions were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Gani, K. M., Kazmi, A. A. (2016). Comparative assessment of phthalate removal and risk in biological wastewater treatment systems of developing countries and small communities. Science of the Total Environment 569-570:661-671.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350189

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty in the measurements was addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Data was primarily reported graphically, values are estimated from the figures. Limit of detection, limit of quantification, and percent recovery were reported, the analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not explicitly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable and trends were comparable to previous studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Gao, D., Li, Z., Wen, Z., Ren, N. (2014). Occurrence and fate of phthalate esters in full-scale domestic wastewater treatment plants and their impact on receiving waters along the Songhua River in China. Chemosphere 95:24-32.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1987643

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Wastewater contaminant; NR; Analytical standard: Sigma-Aldrich Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Three full-scale wastewater treatment plants operating different treatment processes: Cyclic Activated Sludge Technology (CAST) process; Anoxic/Oxic (A/O) process and Anaerobic/Anoxic/Oxic (A/A/O) process; WWTP #1: Indoor CAST process: influent sewage treated by primary sedimentation and a sequence of biological selectors, then enters CAST bioreactor tanks with 6h intermittent aeration cycle (1.5h feeding, 3h aeration, and 1.5h settlement).; WWTP #2: A/O process: 8h of hydraulic retention time and 19d of sludge retention time.
System Type Design	WWTP #3: A/A/O process: 9.5h hydraulic retention time and 17d sludge retention time.
Sampling Frequency and Sampling Details	Not reported; Aqueous samples extracted via standard liquid phase extraction method 8061, U.S. EPA; Sediment/sludge samples dried and extracted with hexane in a mechanical shaker and purified
Test Temperature	WWTP #1: 5.6-5.9°C WWTP #2: 3.9-4.1°C WWTP #3: 4.6-5.0°C
Results Details	Removal efficiency WWTP #1 ca. 30%; WWTP #2 ca. 20%; WWTP #3 ca. 39%; less than 40% of DEHP removed from the aqueous phase by three different treatment processes
Analytical Method and Analytical Details	GC-MS; Instrumental limits of detection (LOD) were calculated from the signal-to-noise ratio of 3 for the pure standard solutions injected into the column. Recovery: 96%
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Occurrence WWTPs: Influent: 2.42-30.99, mean = 16.86 ng/mL; Effluent: 1.7-25.4, mean = 12.64 ng/mL; sludge: 1853.64-9408.4, mean = 4699.07 ng/g; occurrence receiving surface water: 2.26-11.55, mean = 7.01 ng/L, sediment 227.08-566.54, mean 342.8 ng/g
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.

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Study Citation:	Gao, D., Li, Z., Wen, Z., Ren, N. (2014). Occurrence and fate of phthalate esters in full-scale domestic wastewater treatment plants and their impact on receiving waters along the Songhua River in China. Chemosphere 95:24-32.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1987643

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Giam, C. S., Chan, H. S., Neff, G. S. (1976). Concentrations and fluxes of phthalates, DDT's, and PCB's to the Gulf of Mexico. :375-386.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6818639

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Field samples; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Biota, surface sediment, water, and air samples were collected from the Mississippi River Delta and the Gulf of Mexico.; Not reported; Not reported
System Type Design	Not reported
Sampling Frequency and Sampling Details	Number of sampling stations for biota, sediment, water, and air: 24, 36, 34, and 8 respectively.; Biota samples were collected between 1973-74. Sediment samples were collected 1973-75. Water samples were collected 1973-74. Air samples were collected 1973-75.
Test Temperature	Not reported
Results Details	Mean DEHP concentration in biota: 5.0 ng/g; sediment: 9.0 ng/g; water: 112.0 ng/L; air: 0.4 ng/m3.
Analytical Method and Analytical Details	Not reported; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was detected in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No study controls were reported; however, the omissions are unlikely to have an impact on the study results.
	Metric 4:	Test Substance Stability	Low	The preparation and storage conditions of the samples containing the test substance were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	High	As a field study the system type was appropriate.
Domain 4: Test Organisms				

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Study Citation:	Giam, C. S., Chan, H. S., Neff, G. S. (1976). Concentrations and fluxes of phthalates, DDT's, and PCB's to the Gulf of Mexico. :375-386.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6818639

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Low	The biota in the study were not described and the omission may have a substantial impact on the study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology was not clearly described.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not reported in detail.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Variability in the measurements were not reported and the omission may have an impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported and the omission may an impact on the study the results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, the reasonableness of the study results could not be evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination **Low**

Study Citation:	Group, E. F., Jr (1986). Environmental fate and aquatic toxicology studies on phthalate esters. Environmental Health Perspectives 65:337-340.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5644211

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di(2-ethylhexyl) phthalate and other phthalates
Confidentiality, Type, Guideline	Not Reported; Not Reported; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Method Details, Test Condition Details, and Test Consistency Details	Not Reported; Not Reported; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	Summary data for various endpoints; no quantitative data reported.
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	Uninformative	The test substance identity could not be determined from the information provided.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this summary report.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this summary report.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this summary report.
Metric 6:	Testing Conditions	N/A	The metric is not applicable to this summary report.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this summary report.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this summary report.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this summary report.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this summary report.

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Study Citation:	Group, E. F., Jr (1986). Environmental fate and aquatic toxicology studies on phthalate esters. Environmental Health Perspectives 65:337-340.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5644211

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this summary report.
Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this summary report.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	N/A	The metric is not applicable to this summary report.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this summary report.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	N/A	The metric is not applicable to this summary report.
Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this summary report.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	N/A	The metric is not applicable to this summary report.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this summary report.

Overall Quality Determination — Uninformative

Study Citation:	Hollyfield, S., Sharma, V. K. (1995). ORGANIC CONTAMINANTS AND CHARACTERISTICS OF SEDIMENTS FROM OSO BAY SOUTH TEXAS USA. Environmental Geology 25(2):137-140.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335846

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	none; Monitoring study; Monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; contaminant in sediments from Oso Bay, Texas; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Sediment samples were collected from nine sites in a 2.0E7 m2 area; 4 sites at the Oso (freshwater) Creek, five in the Oso (brackish) Bay; discharge rates into area range from 19 to >3.8E6 m3/day; sites 1-4 in Oso Bay, sites 5-8 Oso Creek; sediments were 50-75% mud-sand; sampling was consistent across sites
System Type Design	samples were extracted via Soxhlet extraction with methylene chloride
Sampling Frequency and Sampling Details	not reported; Samples collected via Teflon-coated scoop
Test Temperature	not reported
Results Details	Concentrations µg/kg dry weight) = 40-193; site 1 = 193, site 2 = 124, site 3 = 115, site 5 = 116, site 8 = 122, site 9 = 40 ; not detected at three sites (4, 6, and 7)
Analytical Method and Analytical Details	GC-MS; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Source is contaminated waters; analytical standard not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
	Metric 6:	Testing Conditions	Low	Water and sediment characteristics not reported.
	Metric 7:	Testing Consistency	High	Sampling and analysis were consistent.
	Metric 8:	System Type and Design	High	Field study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.

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Study Citation:	Hollyfield, S., Sharma, V. K. (1995). ORGANIC CONTAMINANTS AND CHARACTERISTICS OF SEDIMENTS FROM OSO BAY SOUTH TEXAS USA. Environmental Geology 25(2):137-140.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335846

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding sampling.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Outcome of interest results were not reported; point sources were not specified.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

Study Citation:	IOP, (2017). Removal efficiency of polycyclic aromatic hydrocarbons and phthalate esters by surface flow wetland in Shunyi district, Beijing. IOP Conference Series-Earth and Environmental Science 59(1):012041.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5432997

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Surface flow wetland system was used to treat industrial wastewater and domestic sewage.; not reported; not reported
System Type Design	17.3 hm2, containing 2 stabilization ponds, 8 grade series SFWs and 1 water storage pond.
Sampling Frequency and Sampling Details	influent and effluent; not reported
Test Temperature	not applicable
Results Details	86% removal rate
Analytical Method and Analytical Details	GC-MS; Detection limits: 0.10-0.40 ng/L; Recovery rates: 85.2-96.3%
Transformation Products, Statistics, and Kinetics	not reported; initial concentration of 2889.0 ug/L reduced to 410.9 ug/L; The main mechanism for the removal by heterotrophic microorganisms.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	IOP, (2017). Removal efficiency of polycyclic aromatic hydrocarbons and phthalate esters by surface flow wetland in Shunyi district, Beijing. IOP Conference Series-Earth and Environmental Science 59(1):012041.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5432997

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were not addressed; however the omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**High**	

Study Citation:	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490434

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; bis(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Sewage sludge samples were collected form 204 municipal wastewater treatment plants in Michigan.; not applicable; not applicable
System Type Design	not applicable
Sampling Frequency and Sampling Details	June - December 1980; 2 samples collected from each treatment plant
Test Temperature	not applicable
Results Details	detected in 197 of 234 samples at 0.415-58,300 mg/kg dry weight
Analytical Method and Analytical Details	GC; extracted with methylene chloride
Transformation Products, Statistics, and Kinetics	not applicable; mean 1250 mg/kg dry weight; median 168 mg/kg dry weight; not applicable
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test substance source or purity were not reported; however, the omissions or identified impurities were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	Only Effluent concentrations reported; Influent concentrations not reported; WWTP type(s) not reported.
Metric 6:	Testing Conditions	N/A	Not applicable (monitoring study).
Metric 7:	Testing Consistency	N/A	Not applicable (monitoring study).
Metric 8:	System Type and Design	Uninformative	WWTP type(s) not reported.

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Study Citation:	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490434

Domain	Metric		EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	Not applicable (monitoring study).
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	Not applicable (monitoring study).
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable (monitoring study).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — Uninformative

Study Citation:	Klöpffer, W., Kaufmann, G., Rippen, G., Poremski, H. J. (1982). A laboratory method for testing the volatility from aqueous solution: first results and comparison with theory. Ecotoxicology and Environmental Safety 6(6):545-559.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5471352

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Measure substance flux (volatility) through water; aqueous solution of test substance prepared in deionized water (0.35 mg/L); Air flow = 0.04 m/sec
System Type Design	test vessel composed of commercially available TLC separation chamber and glass cover
Sampling Frequency and Sampling Details	30 minute time intervals; at 30 min time interval samples taken 10 cm below surface and analyzed;
Test Temperature	295K and 303K (±1°C)
Results Details	Volatilization half-life = 1.2E7 sec at 22°C and 1.3E7 sec at 30°C; 'true' half-residence time, extrapolated from 220h (trap content analysis) = 3500 hr
Analytical Method and Analytical Details	GC with flame ionization detector; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method may not be suitable for the test substance due to poor solubility.
	Metric 6:	Testing Conditions	Medium	Limited detail on testing conditions and monitoring.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Equilibrium conditions not reported.

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Study Citation:	Klöpffer, W., Kaufmann, G., Rippen, G., Poremski, H. J. (1982). A laboratory method for testing the volatility from aqueous solution: first results and comparison with theory. Ecotoxicology and Environmental Safety 6(6):545-559.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5471352

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Limited detail.
	Metric 12:	Test Substance Purity	High	Sampling method were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Test substance solubility likely to have a substantial impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical detail omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study type.

Overall Quality Determination Medium

⋆ Related References: Cited in ECHA

Study Citation:	Lee, W., Park, S. H., Kim, J., Jung, J. Y. (2015). Occurrence and removal of hazardous chemicals and toxic metals in 27 industrial wastewater treatment plants in Korea. Desalination and Water Treatment 54(4-5):1141-1149.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3580141

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; 27 WWTPs in Korea; NR; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples were collected from 27 WWTPs in Korea with capacities > 2,000 m^3/d (ranged from 3,500 - 115,000 m^3/d); All WWTPs partially or fully received industrial wastewater; pH, BOD, COD, SS, total nitrogen and total phosphorus, and DOC measured, results NR
System Type Design	Systems were biosocial treatment processes and physicochemical with biological treatment processes
Sampling Frequency and Sampling Details	Monthly per WWTP; July - September, 2012
Test Temperature	Not reported
Results Details	Influent: 0.003-0.07 mg/LEffluent: 0.003 - 0.012 mg/LDetected in 9/27 WWTPsRemoval efficiency: Approx. 65 - 100%Average removal efficiency: Approx. 85%
Analytical Method and Analytical Details	GC-MS; LOD: 0.001 mg/L; Analyzed according Korea Standard Methods of the Examination of Water and Wastewater
Transformation Products, Statistics, and Kinetics	Not applicable; No correlation to treatment processes; Not applicable
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	Medium	WWTP sample source was reported in general terms.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical or field blanks were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Sample storage and preparation were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited details on the sampled WWTP operations were reported.
	Metric 7:	Testing Consistency	Medium	Limited details on test conditions were reported, consistency could not be verified.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Lee, W., Park, S. H., Kim, J., Jung, J. Y. (2015). Occurrence and removal of hazardous chemicals and toxic metals in 27 industrial wastewater treatment plants in Korea. Desalination and Water Treatment 54(4-5):1141-1149.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3580141

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling was conducted at an appropriate frequency as the study authors state seasonal variation was not a focus.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No sources of uncertainty were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical method was appropriate; limits of detection were reported. Sample extraction procedures and recovery were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method however the study was a low detail presentation of several sampling campaigns, information about removal trends cannot be derived.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Lin, L., Dong, L., Meng, X., Li, Q., Huang, Z., Li, C., Li, R., Yang, W., Crittenden, J. (2018). Distribution and sources of polycyclic aromatic hydrocarbons and phthalic acid esters in water and surface sediment from the Three Gorges Reservoir. Journal of Environmental Sciences 69:271-280.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5576760

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Environmental samples from Yangtze River; AccuStandard Inc. (USA); NR; 99% Notes: Standard mixed solution of 6 target PAEs: DMP, DEP, DBP, BBP, DEHP, DNOP
Test Method Details, Test Condition Details, and Test Consistency Details	Surface water and surface sediment samples collected from tributaries of the Yangtze River in June 6–13 (water drawdown period) and December 14–21 (water impoundment period) in 2015; Not applicable; Not applicable
System Type Design	Not applicable
Sampling Frequency and Sampling Details	June 6–13; December 14–21; Water samples extracted using SPE; sediment samples cleaned up using a glass chromatography column
Test Temperature	Not reported
Results Details	Water: 1.7–394.4 ng/L, sediment: 10.9–1107.1 ng/g
Analytical Method and Analytical Details	GC-MS; Recoveries for water sample 86.9%-110.1%, sediment samples
Transformation Products, Statistics, and Kinetics	Not applicable; Not applicable; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No analytical controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	Sample storage conditions and processing were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions or sample characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				

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Study Citation:	Lin, L., Dong, L., Meng, X., Li, Q., Huang, Z., Li, C., Li, R., Yang, W., Crittenden, J. (2018). Distribution and sources of polycyclic aromatic hydrocarbons and phthalic acid esters in water and surface sediment from the Three Gorges Reservoir. Journal of Environmental Sciences 69:271-280.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5576760

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Quantitative partition coefficients can not be reliably calculated from the data.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical detection limits omitted; concentrations reported in charts are not precise measurements needed to calculate partition coefficients.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, the data is of limited/no capacity for informing environmental partitioning.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination Low

Study Citation:	Liu, H., Chu, Y., Fang, C. (2016). Removal of phthalic acid diesters in the municipal solid waste incineration plant leachate treatment process. Environmental Engineering and Management Journal 15(9):2127-2133.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433350

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	not reported; not reported; not reported; not reported
Radiolabel, Source, State, Purity	none; Tianjin Siyou Co. (Tianjin, China); not reported; >/= 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	leachate treatment process.; raw leachate pH 5.92; DEHP 332.3 ug/L initial concentration; BIO: Up-flow Anaerobic Sludge Blanket (UASB)- 7 day hydraulic retention time; Membrane Bioreactor (MBR)- 3 day hydraulic retention time; Not Reported
System Type Design	system included - raw leachate adjusting pool (ADJ), biochemical pool (BIO), ultrafiltration membrane unit (UFM), reverse osmosis membrane unit (ROM)
Sampling Frequency and Sampling Details	sample points at ADJ, BIO, UFM, ROM; glass bottle collection, preconditioned activated cartridges
Test Temperature	not reported
Results Details	29.1%, 54.5%, 15.6% removal for BIO, UFM, ROM units, respectively. Total removal 99.3%
Analytical Method and Analytical Details	HPLC/UV; 83.2-102.5% recovery; 0.2 ug/L detection limit
Transformation Products, Statistics, and Kinetics	not reported; 3 samples/sampling point; COD, BOD5, SS removal efficiencies 94.7%, 95.6%, 8.3%, respectively.
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Liu, H., Chu, Y., Fang, C. (2016). Removal of phthalic acid diesters in the municipal solid waste incineration plant leachate treatment process. Environmental Engineering and Management Journal 15(9):2127-2133.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433350

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	none reported
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination NEED TO FIX

Study Citation:	Ma, T. T., Wu, L., Chen, L., Zhang, H., Teng, Y., Luo, Y. M. (2015). Phthalate esters contamination in soils and vegetables of plastic film greenhouses of suburb Nanjing, China and the potential human health risk. Environmental Science and Pollution Research 22(16):12018-12028.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3016266

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; Soil and vegetable samples stored at −20°C; NR
Radiolabel, Source, State, Purity	NR; Field samples; Analytical standard: AccuStandard Incorporation (New Haven, Connecticut, USA); NR; NR Notes: Mixed standard solution of six target pollutants including DMP, DEP, butyl benzyl phthalate (BBP), di-n-butyl phthalate (DnBP), bis(2-ethylhexyl) phthalate (DEHP), and DnOP
Test Method Details, Test Condition Details, and Test Consistency Details	Soil and vegetable samples collected from plastic film greenhouses in 4 suburban areas of Nanjing, China: Gu Li village (GL), Hu Shu village (HS), Planck farm (PLK), and Suo Shi village (SS); Average pH of soils = 7.4, mean OC = 14.6 g/kg; available nitrogen, phosphorus, and potassiumwere 9.68, 1.44, and 10.28 g/kg, respectively; Not applicable
System Type Design	sample processing cited to another source.
Sampling Frequency and Sampling Details	samples were collected in December 2011; soil samples collected with a soil corer; plants samples selected randomly for five fruit and compared after one quarter of each fruit was cut and mixed; edible parts were collected, washed with tap water, rinsed with distilled water and dried
Test Temperature	Not reported
Results Details	DEHP Conc (μg/kg)Soil1: 1213±4 Chinese cabbage/leafy: 1130±12Soil2: 954±3 Garlic bolt/leafy: 607±15Soil3: 864±3 Asparagus lettuce/stem: 1893±57 Soil4: 570±2 Crown daisy chrysanthemum/leafy: 840±12 Soil5: 871±3 Pakchoi/leafy: 1857±71 Soil6: 1353±5 Bovine heart shaped cabbage/leafy: 800±21Soil7: 1302±5 Ternip/root: 473±30 Soil8: 1026±4 Celery/leafy: 1120±6Soil9: 863±3 Spinach/leafy: 690±73 Soil10: 946±3 Spinach/leafy: 1537±6 Soil11: 925±3 Asparagus lettuce/stem: 1697±72Soil12: 998±4 Cayenne/solanaceous: 237±15 Soil13: 965±3 Pakchoi/leafy: 5817±21 Soil14: 954±3 Florists chrysanthemum leaf/leafy: 5817±257Soil15: 964±3 Pakchoi/leafy: 1247±71 Soil16: 965±3 Chinese cabbage/leafy: 637±25Soil17: 933±3 Garlic bolt/leafy: 3437±10 Soil18: 914±3 Chinese cabbage/leafy: 757±6Soil19: 1102±91 Pakchoi/leafy: 197±17
Analytical Method and Analytical Details	GC-MS according to a modified version of USEPA method 8270C with an Agilent 7890GC 5975 MSD. Concentrations under the LOD assumed to be one third of that value.; two whole procedure blanks, two soil matrix blanks, and one CRM 136- 100 were analyzed to ensure the analysis reliability
Transformation Products, Statistics, and Kinetics	Not applicable; Each value is the mean of three replicates ±SD. All data were processed with Microsoft Excel 2003 and the SPSS v.14.0 software package. Level of significance p <0.05; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Source of analytical standard was reported; purity of mixed standard was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were reported.

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Study Citation:	Ma, T. T., Wu, L., Chen, L., Zhang, H., Teng, Y., Luo, Y. M. (2015). Phthalate esters contamination in soils and vegetables of plastic film greenhouses of suburb Nanjing, China and the potential human health risk. Environmental Science and Pollution Research 22(16):12018-12028.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3016266

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Sample storage conditions and processing were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil characteristics were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	Medium	Plant characteristics were not reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Quantitative partition coefficients were not explicitly calculated.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical detection limits were not specified.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Martin Ruel, S., Choubert, J. M., Budzinski, H., Miège, C., Esperanza, M., Coquery, M. (2012). Occurrence and fate of relevant substances in wastewater treatment plants regarding Water Framework Directive and future legislations. Water Science and Technology 65(7):1179-1189.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1250779

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	none; Monitoring study; Monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; wastewater; NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Sludge, influent, and effluent samples were collected during 2 or 3 consecutive 24-hr periods under dry-weather conditions and analyzed for removal efficiency of organic substances.; not reported; 19 WWTP treatment lines with various treatment processes and capacities (100-1,000,000 population equivalent)
System Type Design	Treatment processes: 2 primary treatments including primary settling, primary lamellar settling; 15 secondary treatments (activated sludge, fixed film processes like biofilter, trickling filter, biodisc, reed bed filter, 1 membrane bioreactor, 1 stabilisation pond); 6 tertiary treatment lines (sand filtration, activated carbon filter, ozone oxidation, reverse osmosis); 7 rural plants, 8 urban plants, 50% of the plants were equipped with combined sewer 50% with separate sewer.
Sampling Frequency and Sampling Details	Not Reported; Grab samples were collected for treated sludge; Influent and effluent samples were collected using refrigerated samplers equipped with Teflon pipes and glass containers.
Test Temperature	not reported
Results Details	removal efficiency range >70%; frequency of quantification in domestic raw water, and sludge = 100%; mean concentration in raw water 67 µg/L and treated water(after additional tertiary treatments concentrations remained higher than 0.1 µg/L) = 4.6 µg/L; daily average specific load received at WWTP per population equivalent (g/d/PE) = 2%; concentration in sludge ranged from 1-10 mg/kg dw
Analytical Method and Analytical Details	not reported; 'purge and trap'-GC-MS
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Source of wastewaters not specified; analytical standard not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Field blanks were carried out; however, no data were reported.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
	Metric 6:	Testing Conditions	Low	WWTP operational conditions were not reported.

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Study Citation:	Martin Ruel, S., Choubert, J. M., Budzinski, H., Miège, C., Esperanza, M., Coquery, M. (2012). Occurrence and fate of relevant substances in wastewater treatment plants regarding Water Framework Directive and future legislations. Water Science and Technology 65(7):1179-1189.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1250779

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Low	Various WWTPs were evaluated.
	Metric 8:	System Type and Design	Medium	Limited detail regarding the various WWTP systems and design.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest; however, removal efficiency was not specific to one WWTP process.
	Metric 12:	Test Substance Purity	High	Reported sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Specific analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Marttinen, S. K., Kettunen, R. H., Rintala, J. A. (2003). Occurrence and removal of organic pollutants in sewages and landfill leachates. Science of the Total Environment 301(1-3):1-12.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1249997

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; 0
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Method Details, Test Condition Details, and Test Consistency Details	Samples were taken from influent and effluent of four STPs.; Espoo and Jyvaskyla: mechanical treatment and biological activated sludge processes. Toivakka and Virrat: biological treatment only.; Not reported
System Type Design	STPs with influents containing domestic wastewater and runoff/industrial wastewater/landfill leachate
Sampling Frequency and Sampling Details	Samples were collected in 15 minute intervals; 24 hour composite samples were made
Test Temperature	Not reported
Results Details	DEHP % removal from sewage: Espoo: 80-91; Jyvaskyla: 96; Virrat: 95; Toivakka: 96. 71-85% of DEHP was sorbed to particles 0.1-41µm in sewage. DEHP removal by sedimentation was 17-35%.
Analytical Method and Analytical Details	GC-MS; LOQ: 1 µg/L
Transformation Products, Statistics, and Kinetics	Not reported; 71-84% of DEHP was sorbed to particles between 0.1 and 41µm and >6% was sorbed to particles <0.1µm.; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was analytical grade.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank controls were used to monitor laboratory contamination.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation was reported but storage conditions were not; however, the omission is unlikely to have an impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions such as temperature, pH, and CEC were not reported but were unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions in different STPs were described sufficiently.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to the study type.

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Study Citation:	Marttinen, S. K., Kettunen, R. H., Rintala, J. A. (2003). Occurrence and removal of organic pollutants in sewages and landfill leachates. Science of the Total Environment 301(1-3):1-12.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1249997

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not discussed, however, reported concentration ranges suggest the results reasonable.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency was not reported but its omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not clearly described but their omission is unlikely to have an impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Marttinen, S. K., Kettunen, R. H., Sormunen, K. M., Rintala, J. A. (2003). Removal of bis(2-ethylhexyl) phthalate at a sewage treatment plant. Water Research 37(6):1385-1393.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1339689

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Field study at the Espoo STP inFinland which receives ca. 27,000,000 m3 of wastewater from households, industry and landfills from separate sewer system annually; mechanical treatment via screening, grit removal, pre-aeration and sedimentation, followed by biological treatment in an activated sludge process, which includes denitrification followed by nitrification (D/N process); Concentration of DEHP in sewage was 98–122 ug/L; average of 88% was detected in the solids fraction
System Type Design	Sewage flow to the plant during the study period was on average 57,500 m3/d
Sampling Frequency and Sampling Details	three consecutive days from Sunday to Tuesday in September 1999; incoming sewage (S), primary effluent (PE) and secondary effluent (SE), secondary sludge (SeS), combined primary and secondary sludge(CoS), treated sludge (TrS), and combined supernatants and filtrate from sludge treatment (R)
Test Temperature	activated sludge process: 18.5C
Results Details	Ca. 65% of sewage DEHP was present in primary effluent and ca. 6% in the secondary effluent; 29% was removed via activated sludge process and 32% removed via anaerobic digestion (assuming volatilization and abiotic transformation were negligible); Overall removal efficiency in primary and secondary treatment was 97%; volatilization was negligible; 14% was biodegraded; 68% was sorbed to sludges; 3% was discharged with effluent
Analytical Method and Analytical Details	GC/MS; Recovery was greater than 99% from spiked distilled water and spiked extraction thimble without sludge
Transformation Products, Statistics, and Kinetics	primary biotransformation product ismonoethylhexyl phthalate; concentrations did not exceed the detection limit of 2 ug/L in any sample; calculated masses were 16–25% lower than the measured masses; From water phase of sewage entering STP ca. 94% removal resulted in a secondary effluent with concentration lower than the limit for household water; 62% overall removal of DEHP in sewage entering the STP.
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Marttinen, S. K., Kettunen, R. H., Sormunen, K. M., Rintala, J. A. (2003). Removal of bis(2-ethylhexyl) phthalate at a sewage treatment plant. Water Research 37(6):1385-1393.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1339689

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Melo-Guimarães, A., Torner-Morales, F. J., Durán-Álvarez, J. C., Jiménez-Cisneros, B. E. (2013). Removal and fate of emerging contaminants combining biological, flocculation and membrane treatments. Water Science and Technology 67(4):877-885.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2518985

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Hexane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Chemical Co. (St. Louis, MO); NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Test substance concentration in the influent and effluent of WWTP processes (activated sludge, ultrafiltration and flocculation) was evaluated; Wastewater from the main sewer outflow of Mexico City; Comparison between the removal processes was shown
System Type Design	Wastewater from main sewer outflow in Mexico City; A 3.5 L Applikon® bioreactor was operated as a batch system
Sampling Frequency and Sampling Details	Water and sludge sampled at the beginning and at the end of the process, at 5 hours for water and 21 days for sludge; Wastewater samples to use in the study were transported to the laboratory in icepacks and stored at 4°C prior to use. Experimental samples were taken of biological influent, permeate, sludge and the membrane.
Test Temperature	Not applicable
Results Details	46% removal and 25% sorption by activated sludge without flocculant, 49% removal and 76% sorption with flocculant, approx. 75% removal by ultrafiltration and approx. 72% by flocculation, activated sludge and ultrafiltration in series
Analytical Method and Analytical Details	GC-MS with SIM detection; Oasis HLB extraction cartridges used but recovery was not reported
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.

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Study Citation:	Melo-Guimarães, A., Torner-Morales, F. J., Durán-Álvarez, J. C., Jiménez-Cisneros, B. E. (2013). Removal and fate of emerging contaminants combining biological, flocculation and membrane treatments. Water Science and Technology 67(4):877-885.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2518985

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analyses were not reported; however, sufficient data were provided; however, these omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).
OECD Harmonized Template:	Miscellaneous
HERO ID:	1269556

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Destruction of Removal Efficiencies (DRE) was determined for selected pollutants in an Upjohn System incinerator at Upjohn Company in LaPorte, Texas.; Residence time: 5.2 secHeat input: 6.2 - 6.3E6 kJ/hrExcess oxygen in stack: 8.1 - 8.4%; Waste feed heating value: 19,710 - 20,400 kJ/kg (liquid organic), 4,090-4520 kJ/kg (aqueous)Moisture: 35 - 48% (liquid organic), 94 - 97% (aqueous)
System Type Design	Burner/ignition chamber, thermal oxidizer, quench, packed tower
Sampling Frequency and Sampling Details	NR, 3 sample runs collected.; Liquid and solid feed collected as grab samples. Stack effluent collected by modified method 5 (MM5): XAD-2 resin traps with particulate filter
Test Temperature	1116°C
Results Details	DRE: 99.98, 99.95, and 99.98
Analytical Method and Analytical Details	GC/ECD (waste feeds); GC/MS (MM5 gas samples); Waste feeds mixed with tetraglyme and reagent water prior to analysis. Traps were Soxhlet-extracted with methylene chloride, dried with anhydrous sodium sulfate, concentrated using Kuderna-Danish evaporation, with N2.
Transformation Products, Statistics, and Kinetics	Not reported; Linear regression comparison to DRE and starting concentration; no compounds below 200 ug/g in waste feed achieved DRE > 99.99%, correlation coefficient for regression line: - 0.84; Not reported
Reference Substance and Reference Substance Results	MM5 blank samples; Values blank corrected

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The chemical of interest was identified by name.
	Metric 2:	Test Substance Purity	High	Sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Field blanks were included and results were blank corrected.
	Metric 4:	Test Substance Stability	Medium	Sample processing was reported for some samples, storage was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The system stages and appropriate operational parameters were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).
OECD Harmonized Template:	Miscellaneous
HERO ID:	1269556

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining DRE.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and sampled feed and effluents.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified. Study is very thorough.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical methods were appropriate; extraction efficiencies were reported. Limits of detection were not reported explicitly.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable, although the study authors noted their purpose was not to determine operational parameters effects on DRE, only normal DRE under standard conditions.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1265686

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	influent, effluent and sludge samples from 50 treatment plants (plant descriptions are available); duplicate and field blanks were included; plant treatments: primary (P); secondary activated sludge (AS); secondary trickling filter (TF); secondary oxygen activated sludge (OAS); secondary rotating biological contactor (RBC); secondary aerated lagoon (AL); secondary parallel activated sludge and trickling filter (AS/TF); tertiary (T); not reported
System Type Design	not reported
Sampling Frequency and Sampling Details	influent, effluent, sludge; in general: six consecutive days; 24 hour samples; more detail are available.
Test Temperature	not applicable
Results Details	% removal: primary (P): 0; activated sludge (AS): 62; trickling filter (TF): 24; oxygen activated sludge (OAS): 64; rotating biological contactor (RBC): 86; aerated lagoon (AL): 23; activated sludge and trickling filter (AS/TF): 87/72; tertiary (T): 65
Analytical Method and Analytical Details	EPA base-neutral protocol; mean recovery 48-74% and 73±38%
Transformation Products, Statistics, and Kinetics	not applicable; % detection @ influent concentration: 92% @ 2-670 ug/L (POTW 1-40); 98% @ 1-1610 ug/L (POTW 51-60); effluent concentrations: 84% @ 1-370 ug/L (POTW 1-40); 95% @ 1-418 ug/L (POTW 51-60); sludge concentrations: 95% @ 2-47,000 ug/L (POTW 1-40); 100% @ 440-47,000 ug/L (POTW 51-60); average/median concentration in influent: 45/27 ug/L; not reported
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by common name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent blanks and controls were analyzed.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions were documented.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

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Study Citation:	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1265686

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	NR; NR; NR
System Type Design	Activated sludge system
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	71% removal
Analytical Method and Analytical Details	NR; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NR; Not Reported
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	Not applicable to this study type.
	Metric 4: Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6: Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7: Testing Consistency	N/A	Not applicable to this study type.
	Metric 8: System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms			
	Metric 9: Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10: Sampling Methods	N/A	Not applicable to this study type.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Hannah SA et al; J Water Pollut Control Fed 60: 1281-3 (1988)Not previously extracted. HEROID 5555582

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	NR; NR; NR
System Type Design	Wastewater treatment plants
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	Half-life = 23 days
Analytical Method and Analytical Details	NR; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NR; Not Reported
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	Not applicable to this study type.
	Metric 4: Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6: Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7: Testing Consistency	N/A	Not applicable to this study type.
	Metric 8: System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms			
	Metric 9: Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10: Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment			

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Byrns G; Water Res 35: 2523-33 (2001) Not previously extracted. HEROID 5349223

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	NR; NR; NR
System Type Design	Trickling filter system
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	76% removal
Analytical Method and Analytical Details	NR; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NR; Not Reported
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable to this study type.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	N/A	Not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Hannah SA et al; J Water Pollut Control Fed 60: 1281-3 (1988)Not previously extracted. HEROID 5555582

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	NR; AnaerobicSludge digestionSolid retention time: 30 days; NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	26% degradation observed; 69% removal by sorption
Analytical Method and Analytical Details	NR; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NR; Not Reported
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable to this study type.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	N/A	Not applicable to this study type.
Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment			

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Govind R et al; Water Res 25: 547-56 (1991)Not previously extracted. HEROID 5546037

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	High-loaded laboratory scale sludge reactor; NR; NR
System Type Design	Low-loaded activated sludge reactor and biological aerated filter and High-loaded laboratory scale sludge reactor
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	> 64% removal in low-loaded system; 1.8 and 1.9% removal in high-loaded system
Analytical Method and Analytical Details	NR; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NR; Not Reported
Reference Substance and Reference Substance Results	NR; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable to this study type.
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
Metric 7:	Testing Consistency	N/A	Not applicable to this study type.
Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment			

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 8343, Bis(2-ethylhexyl) phthalate.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7681905

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

Overall Quality Determination Medium

* Related References: Clapp LW et al; Water Environ Res 66: 153-60 (1994)Not previously extracted. HEROID 3585789

Study Citation:	Olofsson, U., Lundstedt, S., Haglund, P. (2010). Behavior and fate of anthropogenic substances at a Swedish sewage treatment plant. Water Science and Technology 62(12):2880-2888.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2152195

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	conventional methods to treat the sewage, including mechanical (screening and removal of sand and fat), chemical (flocculation of phosphorus with ferrous sulfate) and biological (degradation of organic material by micro-organisms) processes; STP sampling conducted over two consecutive days with normal operating conditions; Treatment processes: sand/fat removal, pre aeration, primary clarifier, activated sludge treatment, secondary clarifier, thickener, anaerobic digester, sludge silo, dewatered, driers
System Type Design	Sewage treatment plant (STP) using mechanical, chemical, and biological methods for sewage treatment and anaerobic digestion of sludge
Sampling Frequency and Sampling Details	sampling conducted over two consecutive days; Samples pooled (n = 2) and subsampled for each of the chemical analyses; 15 subsamples of raw sewage collected each day in dark 4L bottles; grab samples of final effluent (20 L), primary sludge (8 L), dewatered digested sludge collected in dark bottles
Test Temperature	average weather conditions; temperature, 1°C above monthly average; precipitation, 75% of monthly average
Results Details	Elimination = 38%; sludge adsorption = 96%
Analytical Method and Analytical Details	GC-MS; The analytical techniques applied andanalytical uncertainties are summarized in Table S2 (supporting info).
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Olofsson, U., Lundstedt, S., Haglund, P. (2010). Behavior and fate of anthropogenic substances at a Swedish sewage treatment plant. Water Science and Technology 62(12):2880-2888.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2152195

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details are in supporting document.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Osachoff, H. L., Mohammadali, M., Skirrow, R. C., Hall, E. R., Brown, L. L., van Aggelen, G. C., Kennedy, C. J., Helbing, C. C. (2014). Evaluating the treatment of a synthetic wastewater containing a pharmaceutical and personal care product chemical cocktail: Compound removal efficiency and effects on juvenile rainbow trout. Water Research 62C:271-280.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2345971

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Sigma Aldrich (Oakville, ON, Canada); NR; NR Notes: Applied as a mixture of caffeine, di(2-ethylhexyl)phthalate (DEHP),estrone (E1), EE2, ibuprofen (IBPF), naproxen (NAP), 4-nonylphenol (NP), tonalide (TON), triclocarban (TCC) and triclosan(TCS)
Test Method Details, Test Condition Details, and Test Consistency Details	Synthetic wastewater spiked with pharmaceuticals and personal care products; Plants pre-conditioned for 3 solid retention times (SRTs). Target test substance initial concentration: 40,010 ng/LRemoval efficiency = [(1 - effluent concentration)/initial concentration] * 100; Activated sludge obtained from municipal WWTP. One plant received only nutrient solution and served as a negative control. Synthetic wastewater prepared fresh weekly and added to systems daily for two months.
System Type Design	Two laboratory scale conventional activated sludge treatment plants linked by feed tank. Both had aerobic bioreactors, with fine bubble diffusers, and two clarifiers.
Sampling Frequency and Sampling Details	50L per day per treatment plant as duplicates for 2 months.; Wastewater influents were prepared each week and daily to the systems. Samples were immediately analyzed using solid phase extraction.
Test Temperature	Not reported
Results Details	Removal efficiency: 61.7%Measured initial concentration: 40,609 ng/LMeasured effluent concentration: 15,565 ng/L
Analytical Method and Analytical Details	GC/MS; Solid phase extraction method (method cited); 85% recovery of spikes
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A control system without the test substance was operated, the results of which were presumably within an acceptable range.
	Metric 4:	Test Substance Stability	High	The test substance was prepared as a mixture.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Operating stages were reported generally, key operational conditions were omitted (HRT, SRT, temperature).

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Study Citation:	Osachoff, H. L., Mohammadali, M., Skirrow, R. C., Hall, E. R., Brown, L. L., van Aggelen, G. C., Kennedy, C. J., Helbing, C. C. (2014). Evaluating the treatment of a synthetic wastewater containing a pharmaceutical and personal care product chemical cocktail: Compound removal efficiency and effects on juvenile rainbow trout. Water Research 62C:271-280.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2345971

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported vaguely, sample rate was reported but not duration. Clear sample frequency was not reported. Sample extraction methods may be reported elsewhere.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many study details were omitted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported generally. Percent recovery was reported, limits of detection were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not applied.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method, however many study details (temperature, other operational conditions) were omitted which reduces the reliability of these results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Ozretich, R. J., Schroeder, W. P. (1986). DETERMINATION OF SELECTED NEUTRAL PRIORITY ORGANIC POLLUTANTS IN MARINE SEDIMENT TISSUE AND REFERENCE MATERIALS UTILIZING BONDED-PHASE SORBENTS. Analytical Chemistry 58(9):2041-2048.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1316097

EXTRACTION

Parameter	**Data**
CASRN and Test Material	not reported; Not Reported
Confidentiality, Type, Guideline	No; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Marine sediment samples (shipping channel -SC, Kings Slough - KS, deep disposal DD) and marine -animal tissue samples were spiked with 2.5 mg/kg test substance and analyzed.; SC 96% sand, 3% silt, 1% clay; KS 35% sand, 56% silt, 9% clay; DD 12%sand, 58% silt, 30% clay; SC sediment spiked with 2.5, 1.0, 0.5, and 0.25 mg/kg. SC samples spiked with 2.5 mg/kg were analyzed after storage at 4 and -20C.
System Type Design	not applicable
Sampling Frequency and Sampling Details	not applicable; not applicable
Test Temperature	not reported
Results Details	Recovery from spiked sediment (at 2.5 mg/kg) = 83% (SC), 77% (KS), and 77% (DD), mean recovery = 79% and recovery from spiked tissue homogenate (at 2.5 mg/kg) = 58%; overall recovery at 4 or -20C was ca. 80%; recoveries in SC sediment at 2.5, 1.0, 0.5, and 0.25 mg/kg = 73, 77, 82, and 89%, respectively.
Analytical Method and Analytical Details	GC-MS; Not Reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively
Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study.
Metric 4:	Test Substance Stability	Low	No details reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method did not address fate endpoints.
Metric 6:	Testing Conditions	Medium	Some test conditions were reported.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study.
Metric 8:	System Type and Design	N/A	Not applicable to this study type.

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Study Citation:	Ozretich, R. J., Schroeder, W. P. (1986). DETERMINATION OF SELECTED NEUTRAL PRIORITY ORGANIC POLLUTANTS IN MARINE SEDIMENT TISSUE AND REFERENCE MATERIALS UTILIZING BONDED-PHASE SORBENTS. Analytical Chemistry 58(9):2041-2048.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1316097

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	Medium	Test organism is not routinely used for similar study types.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The study is focused on demonstrating extraction methods from sediments and animal tissues taken from the environment, rather than quantifying substances present in the media.
	Metric 12:	Test Substance Purity	Medium	Some sampling methods were reported mostly concerning spiking levels, temperature, extraction, and analysis.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited analytical details focused on extraction method development rather than monitoring data.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Reported methods were appropriate for the data.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	No fate results were reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Uninformative

Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Miscellaneous
HERO ID:	789349

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: air, water, soil, sediment and fish samples taken in the Netherlands
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring study; Monitoring study; NA
System Type Design	NA
Sampling Frequency and Sampling Details	February 2000, August 2000, February 2001, and August 2001; four sites; Pernis is a highly industrialized area, Vianen is a heavily populated area, and two other background locations
Test Temperature	8 (spring), 17 (summer) and 12 (autumn)
Results Details	Median air concentration 11.9 ng/m3 compared to 0.33 ug/L in freshwater and 67.4 ug/kg (wet) in sediment
Analytical Method and Analytical Details	GC-MS; Not Reported
Transformation Products, Statistics, and Kinetics	NR; NA; NA
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Many test conditions for the study method were not reported and the deviations were likely to have a substantial impact on the results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.

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Study Citation:	Peijnenburg, W. J., Struijs, J. (2006). Occurrence of phthalate esters in the environment of The Netherlands. Ecotoxicology and Environmental Safety 63(2):204-215.
OECD Harmonized Template:	Miscellaneous
HERO ID:	789349

Domain		Metric	EVALUATION Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions may have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; wastewater removal; wastewater removal
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	3 year study (1989-1991); Goteborg (Sweden) Regional Sewage Works; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	93->99% removal: influent 30-40 ug/L; effluent 0.3-2.0 ug/L
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; The contribution of biodegradation to the total removal cannot be evaluated from these data.; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source or purity of the test substance was reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method details were not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cited: Paxéus N, Robinson P, Balmer P (1992) Water Sci Technol 25:249 (not in hero or distiller)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; wastewater removal; wastewater removal
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	3 wastewater treatment plants; Not Reported; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	biodegradation rate 0.55 L/g/day @ 20°C; 85% removal rates from WWTP; modeled average results for the same 3 plants 93%
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; Assuming a standard sludge retention time of 8.5 d, the extent of biodegradation for a system with no primary settler was 11% and for a system with a primary settler was 6%.; 78% and 56% of influent DEHP for a system with no primary settler sludge and a system with a primary settler goes to waste sludge, respectively.
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source or purity of the test substance was reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method details were not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cited: Mikkelsen J, Nyholm N, Jacobsen BN, Fredenslund FC (1996) Water Sci Technol 33:279 (not in hero or distiller)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; wastewater removal; wastewater removal
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	2 g/L mixed liquid suspended solids; Not Reported; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	91% removal: 27% biodegradation removal
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; 0.083 L/g suspended solids/day; half-life 100 hours; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The source or purity of the test substance was reported but may be available in the cited reference.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported but may be available in the cited reference.
	Metric 4:	Test Substance Stability	Low	The substance stability was not reported but may be available in the cited reference.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method details were not reported but may be available in the cited reference.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but more information may be available in the cited reference.
	Metric 7:	Testing Consistency	Low	Test consistency was not reported but may be available in the cited reference.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

Domain	Metric		EVALUATION Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, details may be available in the cited reference.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported but may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not reported but may be available in the cited reference.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the results were not reported but may be available in the cited reference.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described but may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cited: HERO ID: 10273281: Clark B, Henry GLH, Mackay D (1995) Environ Sci Technol 29:1488 (not in distiller)

Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; WWTP; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Analyzed influent and effluent concentrations from two WWTPs, one treating domestic sewage and the other industrial sewage.; DEHP concentration was 25 ug/L in the domestic sewage and 71 ug/L in the industrial sewage; NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	removed by 98% in the effluent of both plants.
Analytical Method and Analytical Details	NR; NR
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; more details may be in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; more details may be in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; more details may be in the source cited.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; more details may be in the source cited.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; more details may be in the source cited.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; more details may be in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; more details may be in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Not reported in this secondary source; more details may be in the source cited.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.

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Study Citation:	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC 3Q:85-124.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5348332

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; more details may be in the source cited.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; more details may be in the source cited.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Not sufficient evidence to rate this metric; more details may be available in the source cited.
Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination NEED TO FIX

* Related References: Cited from Furtmann K (1993) Phthalate in der aquatischen Umwelt. PhD Thesis, UniversitätGesamthochschule Duisenberg. English Translation prepared for European Council forPlasticizers and Intermediates, Brussels, 1996.(Not in HERO at the time of extraction, could possibly be HERO ID 10748712 but its difficult to tell due to paper and citation being in a foreign language.

Study Citation:	Radian Corp, (1989). Environmental analysis for the Shell Martinez RM-17 incinerator, with cover letter dated 3/15/1991 (sanitized).
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335691

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	none; Estimated; Estimated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Byproduct from incineration of RM-17; NR; NR Notes: DEHP; RM-17 is a catalyst used in the manufacturing of household detergents
Test Method Details, Test Condition Details, and Test Consistency Details	RM-17 Incinerator operating at Shell Oil, Martinez, CA, Manufacturing complex.; Single unit incinerator; destroys liquid waste and offgas; not reported
System Type Design	single combustion chamber incinerator with quench column, Venturi scrubber, packed-bed wet scrubber, and mist eliminator
Sampling Frequency and Sampling Details	not applicable; not applicable
Test Temperature	1400-1800°F
Results Details	Emission rate estimate = 1.5E-5 g/second (substance not included in trial run; rate based on published data)
Analytical Method and Analytical Details	not reported; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	Target chemical was not included in burn.
Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.

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Study Citation:	Radian Corp, (1989). Environmental analysis for the Shell Martinez RM-17 incinerator, with cover letter dated 3/15/1991 (sanitized).
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335691

Domain	Metric		EVALUATION Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Quantitative results based on previous research which was not reported; summarized; cited.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Incineration removal information was not reported; data reported is an emissions estimate.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

Study Citation:	Rakkestad, K. E., Dye, C. J., Yttri, K. E., Holme, J. A., Hongslo, J. K., Schwarze, P. E., Becher, R. (2007). Phthalate levels in Norwegian indoor air related to particle size fraction. Journal of Environmental Monitoring 9(12):1419-1425.
OECD Harmonized Template:	Miscellaneous
HERO ID:	675388

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; diethyl hexyl phthalate
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	acetonitrile (for the standards); Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	NA; Standards from LCGC-Promochem (Boras, Sweden); Not Reported; Analytical grade (for the standards) Notes: Test substance obtained from dust samples
Test Method Details, Test Condition Details, and Test Consistency Details	Sampler equipped with a PM10 inlet, providing a 50% cut-off for particles with an EAD (equivalent aerodynamic diameter) of 10 mm, and another sampler was equipped with a PM2.5 inlet, providing a 50% cut-off for particles with an EAD of 2.5 mm. Filters extracted in 4 mL acetonitrile by ultrasonic bath agitation, concentrated and analyzed. PM10 and PM2.5 are defined as particulate matter with an equivalent aerodynamic diameter of 10 mm and 2.5 mm, respectively.; Not Reported; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Date samples collected: 01.10.03–01.12.03; 14 selected Norwegian indoor sites
Test Temperature	room temperature assumed
Results Details	DEHP was observed as 3 to 29 percent (average 12%) of total phthalate concentration measured in indoor particulate matter with PM10 and not detected to 22 percent (average 12%) in PM2.5.
Analytical Method and Analytical Details	HPLC/HRMS-TOF method; Methodological detection limits ranged from 0.04–0.2 ng/m3
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	field blank samples, HPLC pump corrections, and spiked samples with 100 ng deuterium labelled d4-DBP and d4-DnOP were used; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included (where applicable).
	Metric 4:	Test Substance Stability	N/A	This metric does not apply to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	This metric does not apply to this study type.
	Metric 7:	Testing Consistency	N/A	This metric does not apply to this study type.

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Study Citation:	Rakkestad, K. E., Dye, C. J., Yttri, K. E., Holme, J. A., Hongslo, J. K., Schwarze, P. E., Becher, R. (2007). Phthalate levels in Norwegian indoor air related to particle size fraction. Journal of Environmental Monitoring 9(12):1419-1425.
OECD Harmonized Template:	Miscellaneous
HERO ID:	675388

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There were differences between the assessment methodology and the intended outcome assessment (concentration not reported for test substance only relative abundance compared to the total phthalate concentration).
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical methods used were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results were reasonable; however, specific quantitative results for the concentrations of the target were not presented.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Riederer, M. (1990). Estimating partitioning and transport of organic chemicals in the foliage/atmosphere system: Discussion of a fugacity-based model. Environmental Science & Technology 24(6):829-837.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1334863

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Model; Model
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: 1,2-benzenedicarboxylic acid bis(2-ethylhexyl) ester
Test Method Details, Test Condition Details, and Test Consistency Details	A fugacity model in a model leaf was developed using a measured 1-octanol/water partition coefficient, cuticle/water partition coefficient, aqueous solubility, and saturation vapor pressure.; Model leaf characteristics were based off representative broad-leaved trees. Leaf has area of 50cm^2, thickness of 0.3mm. Translocation, metabolism, and growth dilution were assumed to be absent, and uptake/loss to atmosphere was sole process.; Not reported
System Type Design	The 4 calculated partitioning coefficients were: Air/Water (A/W); Cuticle/Air (C/A); Cuticle/Pure Substance (C/P); Whole Leaf/Air (L/A). Octanol/water and Cuticle/water were obtained from other studies.
Sampling Frequency and Sampling Details	Not reported; Not reported
Test Temperature	Not reported
Results Details	Partition coefficients: Log Kaw: -2.12; Log Kca: 9.38; Log Kcp: -3.25; Log Kla: 7.42. Concentration (mol/m^3) in air: 5.08x10^-7; water: 6.76x10^-5; cuticle: 1230; acylglycerol lipid: 4900; mean leaf concentration: 13.5. Equilibrium fugacity (25°C, model leaf 10 µg/kg of fresh weight) = 1.26x10-3 Pa. Equilibrium concentration (mol/m^3): air 5.08x10-7; water 6.76x10-5; cuticle 1230; acylglycerol lipid 4900; mean leaf concentrations 13.5.
Analytical Method and Analytical Details	Not applicable; Not applicable
Transformation Products, Statistics, and Kinetics	Not Reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using the CASRN and its common name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.

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Study Citation:	Riederer, M. (1990). Estimating partitioning and transport of organic chemicals in the foliage/atmosphere system: Discussion of a fugacity-based model. Environmental Science & Technology 24(6):829-837.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1334863

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to the study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Miscellaneous
HERO ID:	675406

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; VWR-Merck (Copenhagen, Denmark); >99% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Removal in wastewater treatment using an activated sludge; plant uses biological removal of nitrogen and phosphorus operating with the Bio-denipho configuration with an anaerobic tank followed by alternating aerobic nitrifying andanoxic denitrifying conditions.; Aerobic/anaerobic conditions; hydraulic retention time for the wastewater is ca. 1 day, sludge concentration in process tanks = 4–7 g SS/L (equivalent to2–4 gVSS/L with a content of 0.5–1.0E12 bacteria/g VSS), sludge age 21–28 days, aerobic sludge age 6–8 days, and the sludge production is 5–6000kg SS/day.; Not Reported
System Type Design	Aalborg East municipal WWTP, Alborg, Denmark
Sampling Frequency and Sampling Details	Flow proportional samples (24h); 3 to 5 different dates: water (Influent and effluent) and sludge (Aeration tank and digester) compartments sampled
Test Temperature	Not Reported
Results Details	81.4% kg/day loss of test material;Influent concentration: 71.89±13.64 ug/L Effluent concentration: 4.92±4.36 ug/L Dewatered sludge concentration: 67.18±9.28 mg/kg dw
Analytical Method and Analytical Details	GC with flame ionization detector; Liquid and solid separation by membrane filtration, SPE extraction of the liquid fraction, and hot solvent extraction of the solid
Transformation Products, Statistics, and Kinetics	not reported; standard deviations reported with mass balance; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means (chemical analysis, etc.).
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Miscellaneous
HERO ID:	675406

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions, however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum source were reported and the inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions) and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical methods or kinetic calculations were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Roslev, P., Vorkamp, K., Aarup, J., Frederiksen, K., Nielsen, P. H. (2007). Degradation of phthalate esters in an activated sludge wastewater treatment plant. Water Research 41(5):969-976.
OECD Harmonized Template:	Miscellaneous
HERO ID:	675406

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		**High**	

Study Citation:	Ruminski, J. K., Dejewska, B., Wojtanis, J. (1995). Environmental research. Part I. Investigations on dioctyl pthalate (DEHP) pollution in soil and surface water near Wabrzezno (Torun District). Polish Journal of Environmental Studies 4(4):65-69.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5707207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; NA; NR
Radiolabel, Source, State, Purity	NA; Samples collected near Sitno Lake, near Wąbrzeźno, Poland; NA; Analytical standard purity not reported
Test Method Details, Test Condition Details, and Test Consistency Details	Field study near outlet of wastewater canal leading from Wąbrzeźno, Poland, synthetic polymers factory, and near an outflow from the lake. Sediment-water concentrations were analyzed.; Bottom mud from two sites, 0.5 and 1.5 m depth, water content: 90.48 - 92.56% (site 1, 0.5 m); 87.88 - 90.10% (site 1, 1.5 m); 87.20-90.83% (site 2, 0.5 m); 89.83-89.91% (site 2, 1.5 m).; Field study
System Type Design	Field study
Sampling Frequency and Sampling Details	One time sampling event; Once on February 2, 1994, bottom mud collected 0.5 and 1.5 m under water level. Natural water from site collected.
Test Temperature	Ambient; not specified
Results Details	DEHP Concentrations = Site 1, 0.5 m: 18.36 and 76.61 mg/kg (soil); 0.1236 and 0.1312 ppm (water); 1.5 m: 82.1 and 66.49 mg/kg; 0.1828 and 0.1344 ppm Site 2, 0.5 m: 51.86 and 63.06 mg/kg; 0.6448 and 0.1596 ppm; 1.5 m: 80.56 and 55.6 mg/kg; 0.4536 and 0.1644 ppm. Estimated Kd based on Kd = [bottom mud, mg/kg] / [water, ppm]: Site 1: 148.5 and 583.9 L/kg (0.5 m); 449.1 and 494.7 L/kg (1.5 m) Site 2: 80.43 and 395.1 L/kg (0.5 m); 177.6 and 338.2 L/kg (1.5 m).
Analytical Method and Analytical Details	HPLC analysis with ODS 10 um 100 x 4 mm column; Mud samples dried, ground and sieved, Soxhlet extracted with hexane, concentrated by rotary evaporator, dissolved in methanol, and 0.45 um ultra filtered.
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not reported
Reference Substance and Reference Substance Results	Not Reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample collection source was reported. Detail on analytical standard not specified.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Field and analytical blanks were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Sediment sample preparation was reported, storage of water and sediment samples was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Low	Only mud water content was reported, no other characteristics were included.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	Ruminski, J. K., Dejewska, B., Wojtanis, J. (1995). Environmental research. Part I. Investigations on dioctyl pthalate (DEHP) pollution in soil and surface water near Wabrzezno (Torun District). Polish Journal of Environmental Studies 4(4):65-69.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5707207

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Monitoring study; partition coefficients were not reported by the authors.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate, only two replicates were collected which may not be representative.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study provided limited sample characteristics.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, recovery was reported qualitatively and limits of detection were not reported. Raw data was reported; partition coefficients were calculated by the reviewer.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were reasonable based on the method but plausibility cannot be verified without other sample characteristics (ex. organic carbon content). Data interpretation was not included by the study authors.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Fate and impact of phthalates in activated sludge treated municipal wastewater on the water bodies in the Eastern Cape, South Africa. Chemosphere 203(Elsevier):336-344.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728386

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di (2-ethyl hexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Accu Standard, Inc USA; NR; 99.6% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	removal efficiency calculated as the ratio of the difference between the total influent and total effluent concentration to the total influent concentrations multiplied by 100; 3 micro or small WWTPs investigated: Adelaids, Alice, and Seymour; Not applicable
System Type Design	WWTP processes included: Screening; Grit removal; Sedimentation; Activated Sludge; Secondary Clarifier; Chlorination
Sampling Frequency and Sampling Details	Composite samples of each of influent, secondary effluent and final effluents from all the selected WWTP including river water were taken once per day on a monthly basis for six months from February to July 2016.; sludge extraction method
Test Temperature	Not reported
Results Details	Removal efficiency: in secondary effluent = 76.38% and final effluent = 67.99% (Adelaids), in secondary effluent = 66.67% and final effluent = 83.94% (Alice), and in secondary effluent = 38.44% and final effluent = 35.98% (Seymour)
Analytical Method and Analytical Details	GC-MS; LOD = 0.88 µg/L for DEHP; LOQ ranged from 1.75-3.99 µg/L for all analytes; analytical blanks included
Transformation Products, Statistics, and Kinetics	Not applicable; relative standard deviation of less than 15% was reported; significance for statistical analysis was set at p values < 0.05.; Mean concentrations = influent: 28.83 µg/L, effluent: 9.23 µg/L, sludge: 120.48 µg/g (Adelaide); influent: 33.69 µg/L, effluent: 5.41 µg/L, sludge: 311.68 µg/g (Alice); influent: 20.72 µg/L, effluent: 13.27 µg/L, sludge: 353.77 µg/g (Seymour)
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blank samples were included.
	Metric 4:	Test Substance Stability	High	Details regarding the storage and stability of the test substance after sampling were not reported but the omission is not likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were not reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.

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Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Fate and impact of phthalates in activated sludge treated municipal wastewater on the water bodies in the Eastern Cape, South Africa. Chemosphere 203(Elsevier):336-344.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728386

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The treatment process was described sufficiently but some details were not reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for the endpoint of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in the measurements.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on reported results from other studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard, Inc.; NR; 99.6%
Test Method Details, Test Condition Details, and Test Consistency Details	The removal capacity of different wastewater treatment plants (WWTP) Eastern Cape, South Africa; A standard working mixture of 100 μgmL-1 in methanol was prepared from the stock solution and stored under 4°C in amber bottles.; Not Reported
System Type Design	Bedford WWTP used oxidation pond, 0.5-2 ML/d, Influent TDS 342.37 ±70.2 mg/L, Effluent TDS 188.59 ±4.1 mg/L, Influent turbidity 637.67 ±13.9 NTU, Effluent turbidity 119.12 ±18.9 NTU, Influent TSS 184.87 ±18.8 mg/L, Effluent TSS 57.4 ±10.8 mg/L.
Sampling Frequency and Sampling Details	Collected from each of the three selected WWTPs on a monthly basis for a period of 6 months from February to July 2016; Each water sample was first dechlorinated by adding 40–50 mg of sodium thiosulfate followed by acidification to a pH of ≤2 with 50% HCl.
Test Temperature	Storage temperature 4°C; Extraction temperature 60°C
Results Details	Mean Influent: 46.43 ±8.64 µg/L, Mean Final Effluent: 10.79 ±4.23 µg/L, Mean Sludge: 288.6 ±36 µg/g
Analytical Method and Analytical Details	Solid-phase extraction method followed by gas chromatography-mass spectrometry (GC-MS) analysis (Agilent 17890B coupled with 5977A MSD).; Filtration through glass wool. Solid-phase extraction in duplicate with n-hexane, dichloromethane, and methanol. Eluents reduced in rotary evaporator and blown under dry stream of N2 at 30°C.
Transformation Products, Statistics, and Kinetics	Not Reported; Regression analysis. Regression coefficients ranged from 0.993 (BBP) to 1.000 (DBP). Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%. Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%.; Not Reported
Reference Substance and Reference Substance Results	External calibration; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were used to determine background contamination.
	Metric 4:	Test Substance Stability	High	The collection, storage, and preparation of the field samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions of the WWTP were reported.

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Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was done across winter, autumn, and summer but sampling methods were consistent and variations were reported.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some of the details regarding the wastewater properties were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the measurements and do not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard, Inc.; NR; 99.6%
Test Method Details, Test Condition Details, and Test Consistency Details	The removal capacity of different wastewater treatment plants (WWTP) Eastern Cape, South Africa; A standard working mixture of 100 μgmL-1 in methanol was prepared from the stock solution and stored under 4°C in amber bottles.; Not Reported
System Type Design	Alice WWTP used activated sludge, 0.5-2 ML/d, Influent TDS 196.64 ±12.3 mg/L, Effluent TDS 147.19 ±5.1 mg/L, Influent turbidity 547.67 ±136.2 NTU, Effluent turbidity 17.82 ±6.9 NTU, Influent TSS 179.87 ±36.5 mg/L, Effluent TSS 6.76-3 ±2.6 mg/L.
Sampling Frequency and Sampling Details	Collected from each of the three selected WWTPs on a monthly basis for a period of 6 months from February to July 2016selected WWTPs on a monthly basis for a period of 6 months from February to July 2016; Each water sample was first dechlorinated by adding 40–50 mg of sodium thiosulfate followed by acidification to a pH of ≤2 with 50% HCl.
Test Temperature	Storage temperature 4°C; Extraction temperature 60°C
Results Details	Mean Influent: 35.66 ±14.71 µg/L, Mean Final Effluent: 5.84 ±2.16 µg/L, Mean Sludge: 311.7 ±23.76 µg/g
Analytical Method and Analytical Details	Solid-phase extraction method followed by gas chromatography-mass spectrometry (GC-MS) analysis (Agilent 17890B coupled with 5977A MSD).; Filtration through glass wool. Solid-phase extraction in duplicate with n-hexane, dichloromethane, and methanol. Eluents reduced in rotary evaporator and blown under dry stream of N2 at 30°C.
Transformation Products, Statistics, and Kinetics	Not reported; Regression analysis. Regression coefficients ranged from 0.993 (BBP) to 1.000 (DBP). Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%. Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%.; Not Reported
Reference Substance and Reference Substance Results	External calibration; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were used to determine background contamination.
	Metric 4:	Test Substance Stability	High	The collection, storage, and preparation of the field samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions of the WWTP were reported.
	Metric 7:	Testing Consistency	High	Testing was done across winter, autumn, and summer but sampling methods were consistent and variations were reported.

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Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some of the details regarding the wastewater properties were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the measurements and do not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; AccuStandard, Inc.; NR; 99.6%
Test Method Details, Test Condition Details, and Test Consistency Details	The removal capacity of different wastewater treatment plants (WWTP) Eastern Cape, South Africa; A standard working mixture of 100 μgmL-1 in methanol was prepared from the stock solution and stored under 4°C in amber bottles; Not Reported
System Type Design	Berlin WWTP used biofilters and drying bed, 1.0-2 ML/d, Influent TDS 380.61 ±42.5 mg/L, Effluent TDS 389.83 ±30.8 mg/L, Influent turbidity 129.43 ±36.2 NTU, Effluent turbidity 6.49 ±4.6 NTU, Influent TSS 49.07 ±17.5 mg/L, Effluent TSS 1.53 ±10.6 mg/L.
Sampling Frequency and Sampling Details	Collected from each of the three selected WWTPs on a monthly basis for a period of 6 months from February to July 2016; Each water sample was first dechlorinated by adding 40–50 mg of sodium thiosulfate followed by acidification to a pH of ≤2 with 50% HCl.
Test Temperature	Storage temperature 4°C; Extraction temperature 60°C
Results Details	Mean Influent: 16.44 ±2.89 µg/L, Mean Final Effluent: 4.40 ±0.96 µg/L, Mean Sludge: 234.93 ±12.4 µg/g
Analytical Method and Analytical Details	Solid-phase extraction method followed by gas chromatography-mass spectrometry (GC-MS) analysis (Agilent 17890B coupled with 5977A MSD).; Filtration through glass wool. Solid-phase extraction in duplicate with n-hexane, dichloromethane, and methanol. Eluents reduced in rotary evaporator and blown under dry stream of N2 at 30°C.
Transformation Products, Statistics, and Kinetics	Not Reported; Regression analysis. Regression coefficients ranged from 0.993 (BBP) to 1.000 (DBP). Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%. Recoveries for PAE's ranged from 5-10 µg/L, surrogate standard 75-123%.; Not Reported
Reference Substance and Reference Substance Results	External calibration; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were used to determine background contamination.
	Metric 4:	Test Substance Stability	High	The collection, storage, and preparation of the field samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions of the WWTP were reported.
	Metric 7:	Testing Consistency	High	Testing was done across winter, autumn, and summer but sampling methods were consistent and variations were reported.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

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Study Citation:	Salaudeen, T., Okoh, O., Agunbiade, F., Okoh, A. (2018). Phthalates removal efficiency in different wastewater treatment technology in the Eastern Cape, South Africa. Environmental Monitoring and Assessment 190(5):299.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5490290

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some of the details regarding the wastewater properties were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the measurements and do not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5707607

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	carbon-14-labelled; Radiochemical Centre, Amersham; NR; sp act. 5¿tCi/mg, radiochemical purity 99% Notes: Mixed with varying amounts of inactive DEHP from Fluka AG, Switzerland (purity >99%) before use
Test Method Details, Test Condition Details, and Test Consistency Details	Fate and partitioning study; Potatoes (Juliver) were planted 8-10 cm deep and at a distance of 20 cm in the first year, after application of the chemical. In the following year, barley was grown as a rotation crop without further soil treatment with 14C-DEHP.; Not reported
System Type Design	Lysimeters study as described by Scheunert et al. (1977,1986).
Sampling Frequency and Sampling Details	Soil contained sand 52.2%, silt 34.5%, clay13.3%; organic matter, 0.3%; pH 6.8.; Potatoes harvested 111 days after application of [14C]DEHP and planting; barley harvested 446 days after application of [14C]DEHP and 104 days after planting. Soil and leached water were also sampled.
Test Temperature	Not reported
Results Details	Total recovery of radioactivity in soil 6.9%, potatoes 0.11%, and leached water 0.51% after one growing period and in soil 1.7%, barley 0.005%, leachate 0.01% after two growing periods.
Analytical Method and Analytical Details	Liquid scintillation counter Betaszint BF 8000 from Berthold and GC-MS; Not reported
Transformation Products, Statistics, and Kinetics	Radioactivity in the top soil layer to 20-cm depth was DEHP (3% of applied 14C), mono(2-ethylhexyl) phthalate (0.14%), phthalic acid (0.35%), unidentified soluble metabolites (1.29%), and unextractable residues (1.84%) after one growing period.; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing condition reporting but the omissions were not likely to have a substantial impact on study results.

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Study Citation:	Schmitzer, J. L., Scheunert, I., Korte, F. (1988). Fate of bis(2-ethylhexyl) (super(14)C)phthalate in laboratory and outdoor soil-plant systems. Journal of Agricultural and Food Chemistry 36(1):210-215.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5707607

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding statistical methods were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however no blanks or reference compounds were included in this experiment.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Shao, X. L., Ma, J. (2009). Fate and mass balance of 13 kinds of endocrine disrupting chemicals in a sewage treatment plant. :5342-5345.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1336562

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Beijing Chemical Plant; NR; >99%
Test Method Details, Test Condition Details, and Test Consistency Details	DEHP concentrations in the primary influent of a wastewater treatment plant, as well as in the effluent of the primary and secondary sedimentation tanks, were measured.; Sewage treatment plant processes 220,000 tons of wastewater daily (20% industrial).; Not reported
System Type Design	Treatment process: (1) grit chamber, (2) primary sedimentation, (3) conventional activated sludge treatment with an anaerobic tank and 4 aerobic tanks, and (4) secondary clarification
Sampling Frequency and Sampling Details	The samples were collected over four sampling campaigns during one year. Samples were collected from influent of primary clarifier and effluent of both the primary and secondary sedimentation tanks in brown glass vessels.; Water samples were collected and adjusted to pH <2 and stored at 4°C. DEHP was extracted using solid phase extraction and analyzed by HPLC.
Test Temperature	Not reported
Results Details	Total removal (%): 96.1±2.7
Analytical Method and Analytical Details	High performance liquid chromatography; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Mass balance results in secondary treatment system: Biodegradation: 59.0%; Adsorption to sludge: 33.1%; Daily % of DEHP in secondary sedimentation effluent: 7.9%; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	No controls were reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	High	The test substance homogeneity in the collected samples and the storage conditions of the samples are appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some details regarding the conditions in the treatment plant were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the study groups.

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Study Citation:	Shao, X. L., Ma, J. (2009). Fate and mass balance of 13 kinds of endocrine disrupting chemicals in a sewage treatment plant. :5342-5345.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1336562

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some details regarding the inoculum were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the calculations and unlikely to influence the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The data was clearly reported, including concentrations and removal percentages. There were some details not reported regarding the analytical method but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, the plausibility of the study results could not be evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Soler-Llavina, S. M., Ortiz-Zayas, J. R. (2017). Emergent contaminants in the wastewater effluents of two highly populated tropical cities. Journal of Water and Health 15(6):873-884.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728707

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Bis-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; waste water; NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Removal from wastewater after primary and tertiary waste water treatment; Phthalate esters detected at concentration levels of 0.33 to 9.20 ppm in the inflow and 0.29 to 6.89 ppm in the outflow (primary); 0.52 to 16.92 ppm in the inflow and 0.09 to 1.29 ppm in the outflow (tertiary); Not applicable
System Type Design	Puerto Nuevo: primary waste water treatment; Caguas: tertiary waste water treatment
Sampling Frequency and Sampling Details	Four sampling events occurred from September to December 2012 at each plant; Composite samples collected at regular intervals or 24h at inflow and outflow stations; all samples were taken in amber glass bottles and stored below 4C during transportation; samples stored at 4C for no more than 2 days prior to analysis
Test Temperature	Not applicable
Results Details	-10.2% removal based on % change of mean inflow (6.25 ppm) and outflow (5.62 ppm) concentrations after primary treatment; 91.3% removal based on % change of mean inflow (7.49 ppm) and outflow (0.65 ppm) concentrations after tertiary treatment
Analytical Method and Analytical Details	solid phase extraction and gas chromatography-mass spectrometry; linear response of the curves produced R-squared of greater than 0.99 for all analytes
Transformation Products, Statistics, and Kinetics	Not applicable; paired t-tests; ANOVA; p value <0.05; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	Low	Test substance analytical standards were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Analytical controls/blanks not reported.
Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
Metric 6:	Testing Conditions	N/A	This metric is not applicable to this type of study.
Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
Metric 8:	System Type and Design	Medium	Limited detail reported.

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Study Citation:	Soler-Llavina, S. M., Ortiz-Zayas, J. R. (2017). Emergent contaminants in the wastewater effluents of two highly populated tropical cities. Journal of Water and Health 15(6):873-884.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728707

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	This metric met the criteria for medium confidence as expected for this type of study. Confounding variables were not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Limited analytical detail reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Tomei, M. C., Mosca Angelucci, D., Mascolo, G., Kunkel, U. (2019). Post-aerobic treatment to enhance the removal of conventional and emerging micropollutants in the digestion of waste sludge. Waste Management 96:36-46.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5692000

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; WWTP waste sludge treatment removal efficiency; WWTP waste sludge treatment removal efficiency
Solvent, Reactivity, Storage, Stability	NA; NR; Stored at 4 deg C prior to analysis; NR
Radiolabel, Source, State, Purity	NA; Waste sludge from "Roma-Nord" WWTP in Rome, Italy; Not Reported; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Waste sludge from WWTP in Italy further treated by semi-continuous mesophilic and aerobic reactors in order to determine removal efficiency of pollutants of interest.; Sludge origin: WWTP "Roma-Nord" in Rome, ItalyTotal solids = 39.71 g/LVolatile solids = 27.44 g/LCOD = 39.87 g/LTOC = 309.44 g/kg dwFeed rate: 0.47 L/d (anaerobic reactor), 0.37 L/d (aerobic reactor)SRT: 15 d (mesophilic anaerobic reactor), 12 d (aerobic reactor)DO (aerobic reactor): ~ 3 mg/L; Not Reported
System Type Design	Two 7.4 L digesters operated in semi-continuous mode; waste sludge fed to the mesophilic anaerobic reactor, a fraction of which was then fed to the aerobic reactor. Both reactors fitted with mechanical stirrers.
Sampling Frequency and Sampling Details	Daily; Samples collected daily and analyzed as 7-10 dey composites, oven dried (60 deg C) prior to analysis.
Test Temperature	Series 1: 37 deg C (anaerobic reactor), 20 deg C (aerobic reactor); Series II: 37 deg C (anaerobic and aerobic reactors)
Results Details	Series I: 84.7% (anaerobic), 67.9% (aerobic); Series II: 83.9% (anaerobic), 77.0% (aerobic)
Analytical Method and Analytical Details	EPA Method 3545 and 8270; LOD = 5 ug/kg dw
Transformation Products, Statistics, and Kinetics	NR; NR; NA
Reference Substance and Reference Substance Results	NA; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for WWTP removal studies.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for WWTP removal studies.
	Metric 4:	Test Substance Stability	High	Sludge sample storage and preparation conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Aerobic and anaerobic conditions were reported, temperature was reported, SRT and sludge characteristics were reported.
	Metric 7:	Testing Consistency	High	Operational conditions were consistent across the study duration.
	Metric 8:	System Type and Design	N/A	Not applicable.

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Study Citation:	Tomei, M. C., Mosca Angelucci, D., Mascolo, G., Kunkel, U. (2019). Post-aerobic treatment to enhance the removal of conventional and emerging micropollutants in the digestion of waste sludge. Waste Management 96:36-46.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5692000

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency and removal efficiency was reported by the study authors.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variability and uncertainty were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported by name with limited details, but it was an EPA standard method. Limit of detection was reported but not extraction efficiency. Raw influent and effluent concentrations were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were plausible based on available method details, and removals were slightly higher than previously determined values.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Topp, E., Scheunert, I., Attar, A., Korte, F. (1986). Factors affecting the uptake of carbon-14 labeled organic chemicals by plants from soil. Ecotoxicology and Environmental Safety 11(2):219-228.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335443

EXTRACTION

Parameter	**Data**
CASRN and Test Material	not reported; Di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Carboxyl-C; Amersham; NR; >99% Notes: 14C-labeled chemicals were mixed with commercially available inactive compounds prior to soil application
Test Method Details, Test Condition Details, and Test Consistency Details	Total 14C in plants is compared to total 14C in soils in a short-term foliar uptake study; soil adsorption coefficients were determined according to the "Screening Test" of the respective OECD guideline (OECD, 198 1 b).; 2 mg/kg 14C-labeled test substance was applied to 300 g soil; soil composition: 33.6% clay, 27.4% silt, 32.4% sand, 6.6% coarse matter, 2.06% OC, pH = 6.4.; Not reported
System Type Design	Closed aerated apparatus
Sampling Frequency and Sampling Details	Not reported; Not reported
Test Temperature	Not reported
Results Details	log Barley Root CFsoil ca. 0.0; Barley Root foliar uptake with volatilization from soil ca. 60% of total 14C (volatilization from soil ca. 0% 14C initially applied)
Analytical Method and Analytical Details	Soxhlet extraction followed by radioactive analysis via LSC using a dioxane-based scintillation liquid; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	High	The purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups that consequently made the study results unreliable.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (temperature, duration).
Metric 7:	Testing Consistency	Medium	Limited detail regarding this metric.

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Study Citation:	Topp, E., Scheunert, I., Attar, A., Korte, F. (1986). Factors affecting the uptake of carbon-14 labeled organic chemicals by plants from soil. Ecotoxicology and Environmental Safety 11(2):219-228.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1335443

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Low	The system type and design (sealed/open) were not capable or confirmed to appropriately maintain substance concentrations. Equilibrium/steady state was not established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination — Uninformative

Study Citation:	Tran, B. C., Teil, M. J., Blanchard, M., Alliot, F., Chevreuil, M. (2014). BPA and phthalate fate in a sewage network and an elementary river of France. Influence of hydroclimatic conditions. Chemosphere 119C:43-51.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2519056

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-ethyl-hexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	isooctane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Wastewater influent; Wastewater contaminant; NR Notes: Analytical standard: standard solution of 6 phthalates, DMP, DEP, DnBP, BBP, DEHP, DnOP, from Supelco (via Sigma–Aldrich)
Test Method Details, Test Condition Details, and Test Consistency	DEHP concentrations in WWTP inputs = 33±15.4 ug/L, output = 2.0±1.2 ug/L; removal efficiencies estimated by differences between WWTP input and output concentrations.; Wastewater fluxes entering ranged from 270 to 532 m3/d during 2010–2011; transit time inside was ca. 17 hours.;
Details	The annual mean decrease between inputs and outputs for biological oxygen demand (BOD5), chemical oxygen demand (COD) and suspended matter were of 98%, 91% and 95.2%, respectively, during 2010–2011
System Type Design	WWTP employs a combined tank (decantation and activated sludge)which treated 157000 m3 of wastewater by biological process and produced about 32 t/year of dry sludge
Sampling Frequency and Sampling Details	NR; WWTP input filtered through glass fiber filters to separate dissolved and Sed phases; phases treated with solvent mixture (75% hexane and 25% methylene chlorine for dissolved phase or hexane/acetone (50/50 vol/vol) for sediment), then concentrated
Test Temperature	Not reported
Results Details	94% removal efficiency by degradation and decantation
Analytical Method and Analytical Details	GC/MS; MDL corresponded to the concentration of a signal/noise ratio of 9 (DEHP detected in the blanks ≤10 ng); limits of quantification (LOQ) corresponded to average blank values. When they were below IDLs, the MDLs were considered.
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.

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Study Citation:	Tran, B. C., Teil, M. J., Blanchard, M., Alliot, F., Chevreuil, M. (2014). BPA and phthalate fate in a sewage network and an elementary river of France. Influence of hydroclimatic conditions. Chemosphere 119C:43-51.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2519056

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	U.S. EPA, (1974). Pesticides in the Illinois waters of Lake Michigan.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1333424

EXTRACTION

Parameter	Data
CASRN and Test Material	not reported; Not Reported
Confidentiality, Type, Guideline	No; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring study of Lake Michigan sediments (approx 40-80 yards offshore, tributary streams and ravine sediments in Illinois (approx 50 yards offshore), and sewage treatment plants (1-3 miles offshore).; NR; NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; Samples collected in 1970-1972. Water grab samples and composite samples collected. Whole fish and fillet collected and frozen until analysis. Direct sediment samples collected.
Test Temperature	NR
Results Details	Di-ethylhexyl phthalate was found in 3 of 24 open water sediments <1 to 3 miles off shore at concentrations ranging from 1.02-7.18 ppb; and found in 5 out of 13 samples up to 50 yards upstream from the lake at concentrations of 42.90-218.00; di-ethylhexyl phthalate was not detected in the Waukegan River or Pettibone creek; di-ethylhexyl phthalate was detected in effluents in 5/6 samples in 1971 at concentrations of 90.0-760.0 ppb. Di-ethylhexyl phthalate was found in edible portions of fish at concentrations of ND to 1.3 ppm.
Analytical Method and Analytical Details	Samples analyzed according to FWPCA Method for Chlorinated Hydrocarbon Pesticides in Water and Wastewater; Varian Aerograph 204 with 2 columns and Ni detector; deviations:1000 mL Erlenmeyer fitted with Snyder distillation columns flasks; LOD = 10 ppb (fish), 1 ppb (sediment), 100 ppt (water); % recovery = 85-95% (fish), 90% (sediment and water)
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Source was reported; analytical standard not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study.

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Study Citation:	U.S. EPA, (1974). Pesticides in the Illinois waters of Lake Michigan.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1333424

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	Low	The test organisms were reported with minimal detail.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The assessment methodology did not specifically or quantitatively address or report the outcome of interest (transport/WWTP removal).
	Metric 12:	Test Substance Purity	High	Sampling methods of the outcome were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail regarding sample locations.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.

Overall Quality Determination Medium

Study Citation:	Viecelli, N. C., Lovatel, E. R., Cardoso, E. M., Nascimento Filho, I. (2011). Quantitative Analysis of Plasticizers in a Wastewater Treatment Plant: Influence of the Suspended Solids Parameter. Journal of the Brazilian Chemical Society 22(6):1150-1155.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3982846

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	none; Monitoring study; Monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Merck Co., Rio de Janeiro, Brazil; NR; standard - recovery grade: >90% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Wastewater removal efficiency assessed at the University of Caxias do Sul WWTP using liquid-liquid extraction of five wastewater samples collected from inflow and outflow points.; wastewater generated: 100 m3/day; average characteristics of five samples: influent: COD = 803, BOD = 430, suspended solids 103, pH 7.5, effluent COD = 95, BOD = 57.2, suspended solids 59, pH 7.4; not reported
System Type Design	treatment system: aeration lagoon (HRT: 4 days), sedimentation lagoon (HRT: 2 days) and two maturation lagoons (total HRT: 26.9 days)
Sampling Frequency and Sampling Details	samples collected 1 time per month; 1st test: composite samples were filtered prior to extraction; 2nd test: filtered and unfiltered samples were extracted for comparison
Test Temperature	not reported
Results Details	Wastewater removal based on analysis of organic extracts of LLE during 5 months = 19.90% (average effluent = 20.00 mg/L; wastewater removal of organic extracts of LLE with and without prefiltration step = 74.44% (average effluent = 6.01 mg/L) and 40.96%, respectively (average effluent = 17.04 mg/L)
Analytical Method and Analytical Details	GC-FID; detection limit: 0.5 mg/L, quantification limit: 1.0 mg/L; target chemical was not detected in extraction blanks; recovery yields for filtered = 75.95±5.13% and unfiltered = 91.60±1.37%
Transformation Products, Statistics, and Kinetics	not reported; ± standard deviations were reported; not reported
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The sample source from WWTPs was reported; analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Extraction blanks included.
	Metric 4:	Test Substance Stability	High	Sampling was appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	WWTP operational stages and HRT were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	Viecelli, N. C., Lovatel, E. R., Cardoso, E. M., Nascimento Filho, I. (2011). Quantitative Analysis of Plasticizers in a Wastewater Treatment Plant: Influence of the Suspended Solids Parameter. Journal of the Brazilian Chemical Society 22(6):1150-1155.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3982846

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment allowed for the determination of removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable uncertainties were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Vikelsøe, J., Thomsen, M., Carlsen, L. (2002). Phthalates and nonylphenols in profiles of differently dressed soils. Science of the Total Environment 296(1-3):105-116.
OECD Harmonized Template:	Miscellaneous
HERO ID:	789658

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	No; Experimental field study; Experimental field study
Solvent, Reactivity, Storage, Stability	NA; NA; Glass bottles provided with PTFE-lined screw caps, frozen, and stored at -20 deg C; NA
Radiolabel, Source, State, Purity	NA; soil samples; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Samples collected at different depths from eight differently dressed, fertilised andcultured fields and run-off from a sewage sludge storage facility; Danish agriculture fields; Not Reported
System Type Design	samples spiked with 1 mg [D4]DBP, [D4]BBP and [D4]DEHP dissolved in ethanol, and extracted with dichloromethane
Sampling Frequency and Sampling Details	1 sample was taken once in 1996 and again in 1998ter; Sampled at 2 positions 5–10 m apart 50 cm long
Test Temperature	NA for fields samples
Results Details	16, 25, 12, 40, 12, 38, 1110, 1900 and 158 ug/kg dry weight for uncultured, manured 40 years, manured 5 years, artificially fertilised, low sludge, normal sludge, high sludge, high sludge 2 years later, and runoff, respectively.
Analytical Method and Analytical Details	gas chromatograph-high-resolution mass spectrometer ionisation electron impact; Not Reported
Transformation Products, Statistics, and Kinetics	NR; The authors state DEHP may move down in soil 10 cm/year, elutes from sand.; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations but these deviations or omissions were not likely to have a substantial impact on study result
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Vikelsøe, J., Thomsen, M., Carlsen, L. (2002). Phthalates and nonylphenols in profiles of differently dressed soils. Science of the Total Environment 296(1-3):105-116.
OECD Harmonized Template:	Miscellaneous
HERO ID:	789658

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were consistent with related physical chemical properties
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Wang, R., Ji, M., Zhai, H., Liu, Y. (2020). Occurrence of phthalate esters and microplastics in urban secondary effluents, receiving water bodies and reclaimed water treatment processes. Science of the Total Environment 737:140219.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6968279

EXTRACTION

Parameter	Data
CASRN and Test Material	not reported; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	No; Monitoring study; Monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Wastewater; NR; NA Notes: Analytical standard DEHP was from Dr. Ehrenstorfer (Germany) company and made as a stock solution in n-hexane
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring of PAEs in urban secondary effluents and receiving water bodies with no observable flow.; A portion of the secondary effluent from the WWTPs was directly dischargedinto an urban river or lake, the other effluent portion was furthertreated in subsequent RWTPs for reuse. Processes at 4 RWTPs (in four WWTPs) included: RWTP S: air flotation, ultrafiltration, reverse osmosis and chlorination; RWTP X: coagulation-sedimentation, microfiltration, reverse osmosis and ozonation; RWTP B: coagulation-sedimentation, V-filter filtration and chlorination; RWTP H: high-efficiency clarification, sand filtration and chlorination.; 4 WWTPs/RWTPs with different sequential treatments evaluated
System Type Design	Major treatment process included: Multi-unit Anoxic/Oxic, Oxidation ditch-Anaerobic/Anoxic/Oxic, and DE oxidation ditch + multi-unit Anoxic/Oxic
Sampling Frequency and Sampling Details	Not reported; Sampling conducted Dec 20-27, 2017 (winter) and April 4-10, 2018 (spring) at four municipal WWTPs (2 in Tianjin, 1 in Xi'an (Shaanxi Province) and 1 in Beijing); secondary effluent samples, receiving water body samples, and samples from each unit of the RWTPs were collected.
Test Temperature	not reported
Results Details	DEHP concentrations in urban secondary effluents ranged from 0.466 (μg/L spring) to 1.8193 μg/L (winter); concentrations in receiving waters: up to 0.12 μg/L (Lake/Winter) and as low as <0.01 μg/L (Lake/Spring), ca. 0.55-1.75 μg/L (Rivers/Winter), ca. 0.27-1.75 μg/L (Rivers/Spring).
Analytical Method and Analytical Details	SPE of water samples followed by GC-MS; MDLs in supporting document
Transformation Products, Statistics, and Kinetics	not reported; not reported; Removal rate for each RWTP unit = (Ci−Ce)/C and removal mass = (Ci−Ce) x V; Ci: analyte concentration in influent of one unit, Ce: analyte concentration in effluent of the unit, V: daily reclaimed flow. DEHP and DBP were the main PAE species in all samples from the RWTPs. For all plants total removal PAE rates were 50.5-64.3% (removal mass 10.5-18.8 g/day) in winter and 47.7-81.6% (removal mass 4.1-11.5 g/day) in spring; filtration and reverse osmosis processes were responsible for the greatest removal efficiencies overall; in general chlorination was found to increase the levels of PAEs in spring.
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	Monitoring study; analytical standard reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.

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Study Citation:	Wang, R., Ji, M., Zhai, H., Liu, Y. (2020). Occurrence of phthalate esters and microplastics in urban secondary effluents, receiving water bodies and reclaimed water treatment processes. Science of the Total Environment 737:140219.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6968279

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	High	WWTP processes were described.
	Metric 7:	Testing Consistency	High	The conditions of each plant were documented.
	Metric 8:	System Type and Design	N/A	The metric was not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric was not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric was not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology did not address or report the outcome of interest specifically for the target chemical; however, details may be reported in the supporting document.
	Metric 12:	Test Substance Purity	High	Reported sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical and quantitative details regarding the outcome of interest specifically for the target chemical were not reported; however, details may be reported in the supporting document.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results were reasonable; however, limited by detail in the supporting document which was not available.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wang, X. K., Guo, W. L., Meng, P. R., Gan, J. A. (2002). Analysis of phthalate esters in air, soil and plants in plastic film greenhouse. Chinese Chemical Letters 13(6):557-560.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5518156

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; monitoring study; standard obtained from Shanghai Chemical Regent Works; NR; analytical grade standard Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring of phthalate esters in air, soil and plants in a plastic green house used for 2 years; Air samples: collected using GDX-102 resin(60-80 mesh) by using air sampling pump; soil samples: collected in and out-side of greenhouse; Not reported
System Type Design	Greenhouse air, plants, and soil inside and outside
Sampling Frequency and Sampling Details	Air, plant, and soil samples collected in December 2000; 6 samples from each media were collected
Test Temperature	Not reported
Results Details	Concentration in air: 550±210 ng/m3, in soil inside (depth): 2.7±0.6 (5cm), 3.4±0.7 (10cm), 2.9±0.9 (15cm), 1.8±0.6 (25cm), in soil outside (depth): 1.2±0.5 (5cm), 1.3±0.8 (10cm), 1.3±0.6 (15cm), 0.8±0.4 (25cm); Concentration in plants: 1.9±1.3 mg/kg (Chinese cabbage), 1.2±0.7 mg/kg (cucumber), 1.0±0.6 mg/kg (summer squash)
Analytical Method and Analytical Details	HPLC, UV detection wavelength was 228 nm; Recovery from spiked plant samples: 98.4±4.2% and soil samples: 96.1±5.4%
Transformation Products, Statistics, and Kinetics	Not applicable; Not reported; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	Low	Conditions were not reported; soil characteristics were not included.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				

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Study Citation:	Wang, X. K., Guo, W. L., Meng, P. R., Gan, J. A. (2002). Analysis of phthalate esters in air, soil and plants in plastic film greenhouse. Chinese Chemical Letters 13(6):557-560.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5518156

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Wang, Y. Q., Hu, W., Cao, Z. H., Fu, X. Q., Zhu, T. (2005). Occurrence of endocrine-disrupting compounds in reclaimed water from Tianjin, China. Analytical and Bioanalytical Chemistry 383(5):857-863.
OECD Harmonized Template:	Miscellaneous
HERO ID:	533749

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	ethyl acetate; NR; Stored at -18°C prior to use; NR
Radiolabel, Source, State, Purity	NR; Aldrich; Standard solutions prepared in ethyl acetate; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Analyte sampling at various points in a reclaimed water treatment process using coagulation, continuous micro-membrane filtration (CMF), and ozonation in that order.; Coagulation-flocculation treatment: polyaluminum chloride (PAC) as coagulant (15 mg/L); continuous micro membrane filtration (CMF) treatment (0.2 μm pore size); ozonation treatment (dosage: 5–6 mg/L); Not applicable
System Type Design	Monitoring of WWTP samples
Sampling Frequency and Sampling Details	Seven rounds of sampling were conducted from October 2003 to September 2004.; Average flow rate during sampling period = 20000 m3/day
Test Temperature	Not reported
Results Details	Average removal efficiency = 78%
Analytical Method and Analytical Details	SPE and GC-MS; LOD = 0.13-0.2 µg/L for phthalates
Transformation Products, Statistics, and Kinetics	Not reported; Average concentration (7 samples): Influent = 1800 ng/L , coagulation 558 ng/L, CMF = 478 ng/L, ozonation 392 ng/L.; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	Test substance source and purity reported and measured by analytical methods.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				

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Study Citation:	Wang, Y. Q., Hu, W., Cao, Z. H., Fu, X. Q., Zhu, T. (2005). Occurrence of endocrine-disrupting compounds in reclaimed water from Tianjin, China. Analytical and Bioanalytical Chemistry 383(5):857-863.
OECD Harmonized Template:	Miscellaneous
HERO ID:	533749

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Wu, J., Ma, T., Zhou, Z., Yu, N.,a, He, Z., Li, B., Shi, Y., Ma, D. (2019). Occurrence and fate of phthalate esters in wastewater treatment plants in Qingdao, China. Human and Ecological Risk Assessment 25(6):1547-1563.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5442818

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Standard solution of 16 PAEs purchased from O2SI, Inc (USA); Standard solution; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	WWTP Removal efficiency; Qingdao, China Rivers: Chengyang, Licun, and Haibo, which employ different treatment processes; A procedural blank, solvent blank, spiked blank, and sample duplicate were tested for every10 samples for quality control and quality assurance (QC/QA).
System Type Design	6890 gas chromatograph connected to a 5973 mass spectrometer(GC-MS) (Agilent Technologies, Avondale, PA, USA) equipped with electron impact and selective ion monitoring modes.
Sampling Frequency and Sampling Details	57 sewage and 9 sludge samples; PAEs were extracted from 100 mL liquid samples thrice using 50 mL n-hexane, evaporated extracts were reduced to 1 mL and measured using gas chromatography-mass spectrometry (GC-MS).
Test Temperature	column initial temperature of 80°C maintained for 1.0 min, increased to 180C at a rate of 20C/min with 10 min holding time, and increased to 300°C at 2°C/min and maintained for 10 min
Results Details	Removal % Chengyang: 73.12, Licun: 90.08, Haibo: 65.63
Analytical Method and Analytical Details	GC-MS equipped with electron impact and selective ion monitoring modes; instrument detection limits ranged from 1-9 pg
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Medium	Purity of standard solution was not provided but not likely to influence the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance homogeneity, preparation, and storage conditions were not reported but their omission is not likely to influence the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Wu, J., Ma, T., Zhou, Z., Yu, N.,a, He, Z., Li, B., Shi, Y., Ma, D. (2019). Occurrence and fate of phthalate esters in wastewater treatment plants in Qingdao, China. Human and Ecological Risk Assessment 25(6):1547-1563.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5442818

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted or identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wu, Q., Lam, J. C. W., Kwok, K. Y., Tsui, M. M. P., Lam, P. K. S. (2017). Occurrence and fate of endogenous steroid hormones, alkylphenol ethoxylates, bisphenol A and phthalates in municipal sewage treatment systems. Journal of Environmental Sciences 61(Elsevier):49-58.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728656

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; waste water; NR; ≥98% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Removal efficiency calculated as the ratio of the difference between concentration in influent and effluent to the concentration in the influent times 100; PS: primary sedimentation; CEPT: chemical enhanced primary treatment; AS: activated sludge; SF: sand filtration; Cl2: chlorination disinfection; UV: UV disinfection; RO: reverse osmosis; Sewage and sludge samples were collected from four sewage treatment plants located in Hong Kong
System Type Design	sewage treatment plants
Sampling Frequency and Sampling Details	The influent, effluent and samples were collected from plants for three consecutive days from June to August 2013; Samples were immediately transferred on ice to the lab, filtered through 0.45-μm glass fiber filters and stored at 4°C for next day analysis.
Test Temperature	Not applicable
Results Details	Removal efficiency: PS: ca. -10%; CEPT: ca. 65%; AS: ca. 75%; SF: ca. -50%; Cl2: ca. -25; UV: ca. -15%; RO: ca. -99%
Analytical Method and Analytical Details	LC–MS/MS used for identification and quantification; LOD = 0.01–1 ng/L and LOQ 0.01-2.5 ng/mL; not specified for individual analytes
Transformation Products, Statistics, and Kinetics	Not applicable; SigmaStat 3.5; normality tests; ANOVA; significance level was set at p = 0.05; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The purity of the test substance was reported; more detail in SI (not publicly available).
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical blank samples were not reported.
	Metric 4:	Test Substance Stability	High	Details regarding the storage and stability of the test substance after sampling were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were not reported; more detail in SI (not publicly available).
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Wu, Q., Lam, J. C. W., Kwok, K. Y., Tsui, M. M. P., Lam, P. K. S. (2017). Occurrence and fate of endogenous steroid hormones, alkylphenol ethoxylates, bisphenol A and phthalates in municipal sewage treatment systems. Journal of Environmental Sciences 61(Elsevier):49-58.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728656

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for the endpoint of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in the measurements.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Wu, Y., Chen, X. X., Zhu, T. K., Li, X., Chen, X. H., Mo, C. H., Li, Y. W., Cai, Q. Y., Wong, M. H. (2018). Variation in accumulation, transport, and distribution of phthalic acid esters (PAEs) in soil columns grown with low- and high-PAE accumulating rice cultivars. Environmental Science and Pollution Research 25(18):17768-17780.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728507

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; Di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aladdin Chemistry Co. (Shanghai, China); NR; 99.0% analytical grade Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	two rice cultivars, Peizataifeng and Fenyousimiao, were grown in leaching columns packed with contaminated paddy soil collected from Guangzhou, China; Concentrations in rice tissues (root, stem, leaf, and grain) ranged from 0.73 to 6.79 mg/kg; Concentrations in pore water of Peizataifeng at 0-10, 10-20, 20-30, 30-40, and 40-50 cm were ca. 5, 4, 3, 2.5, and 2.5 µg/L, respectively, and in pore water of Fenyousimia were ca. 8, 7, 2.5, 6.5, and 2 µg/L, respectively
System Type Design	Soil leaching column; 10 cm of PAE-contaminated soil on surface and 40 cm of PAE-free soil; soil: 27.1 g/kg OM, 1.40 g/kg total nitrogen, 1.76 g/kg total phosphorus, and 18.0 g/kg total potassium, pH 6.05, 36.4% sand, 46.2% silt, and 17.4% clay
Sampling Frequency and Sampling Details	plant and soil samples were collected at the jointing and ripening stages of rice (50 and 100 days after transplanting, respectively; samples of the five rice plants were collected together from each soil column; soil and pore water samples were collected from sampling ports on both sides of the soil column; extraction of water samples was conducted within 12h after collection
Test Temperature	Not reported
Results Details	BCF (values in Supplementary Data), the ratio of PAE concentrations in rice tissues to environment; bioconcentration factors of Peizataifeng were higher than those of Fengyousimiao indicating that Peizataifeng had a greater ability to accumulate the test substance. After 50 and 100 days of rice growth, the test substance could be detected at all layers of soil.
Analytical Method and Analytical Details	soil and plant extraction method: USEPA 3540C with modifications; pore-water and leachate samples were extracted and purified by solid phase extraction; analysis via GC/MS; Recoveries ranged from 85.3-103%; MDL: 0.05 µg/kg
Transformation Products, Statistics, and Kinetics	Not reported; Statistical analyses (calculating average value, std dev, regression, and Pearson correlation performed using SPSS 24.0 for Windows; $p < 0.05$; Not reported
Reference Substance and Reference Substance Results	Non-spiked and sterile controls included; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Wu, Y., Chen, X. X., Zhu, T. K., Li, X., Chen, X. H., Mo, C. H., Li, Y. W., Cai, Q. Y., Wong, M. H. (2018). Variation in accumulation, transport, and distribution of phthalic acid esters (PAEs) in soil columns grown with low- and high-PAE accumulating rice cultivars. Environmental Science and Pollution Research 25(18):17768-17780.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4728507

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited detail on testing conditions and monitoring.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Equilibrium conditions not reported. The details of the experimental design are illustrated in Supplementary Documents, not publicly available.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail in Supplementary Documents, not publicly available.
	Metric 12:	Test Substance Purity	Low	Detail in Supplementary Documents, not publicly available.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail, including BCF values, are in Supplementary Documents, which was not publicly available.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Methods for statistical analysis were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible. Supplementary Documents would add value to the study.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study type.

Overall Quality Determination — Low

Study Citation:	Wu, Y., Eichler, C. M. A., Cao, J., Benning, J., Olson, A., Chen, S., Liu, C., Vejerano, E. P., Marr, L. C., Little, J. C. (2018). Particle/Gas Partitioning of Phthalates to Organic and Inorganic Airborne Particles in the Indoor Environment. Environmental Science & Technology 52(6):3583-3590.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4663144

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich; Liquid; ≥99.5% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Liquid DEHP was applied to inner wall of tube as the emission source; flow rate controlled via mass flow controllers, Airgas used as inflow to the chamber.; Particle generation: solid ammonium sulfate(inorganic) using an atomizer; polar, liquid oleic acid (organic) and nonpolar, liquid squalane (organic) using vaporization−condensation approach; particles introduced over multiple episodes for 1−5 h period; particle size: 40−130 nm oleic acid, 110−170 nm for squalane, 70−80 nm inorganic particles; different flow rates for each type of particle resulting in different residence times.
System Type Design	novel tube chamber made of stainless steel; equilibrium between air and particles attained
Sampling Frequency and Sampling Details	Samples collected after 1-5h of particle introduction followed by clean air introduction; sample tubes capable of capturing more than 85% of the particles; Two parallel tubes for measuring gas-phase DEHP and gas- and particle-phase DEHP combined; sampling apparatus directly attached to the tube chamber; standard sorbent tubes with Tenax TA used to collect effluent air samples.
Test Temperature	25±0.5°C
Results Details	Kp (oleic acid) = 0.23±0.13 m3/µg, Kp (squalane) = 0.11±0.10 m3/µg, Kp (inorganic particles) = 0.011±0.004 m3/µg. Kp = partition coefficient between gas- and particle phase of semi volatile organic compounds.
Analytical Method and Analytical Details	thermal desorption (TurboMatrix TD, PerkinElmer) coupled with gas chromatography/flame ionization detection (Agilent 6890 GC/ FID); Details cited
Transformation Products, Statistics, and Kinetics	not applicable; 95% confidence interval; Grubbs' test for outliers; significance level of α = 0.05, p-value <0.05; 5 equations represent model describing mass transfer in the tube; solved using a finite difference approach with MATLAB R2012b as the programming platform (detail in SI)
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	High	Test substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Novel method; no controls or reference substances were reported.
Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
Metric 6:	Testing Conditions	Medium	This metric met the criteria for medium confidence as expected for this type of study.

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Study Citation:	Wu, Y., Eichler, C. M. A., Cao, J., Benning, J., Olson, A., Chen, S., Liu, C., Vejerano, E. P., Marr, L. C., Little, J. C. (2018). Particle/Gas Partitioning of Phthalates to Organic and Inorganic Airborne Particles in the Indoor Environment. Environmental Science & Technology 52(6):3583-3590.
OECD Harmonized Template:	Miscellaneous
HERO ID:	4663144

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study. Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	Medium	This metric met the criteria for medium confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	This metric met the criteria for medium confidence as expected for this type of study. Confounding variables were not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination Medium

Study Citation:	Wu, Y., Sun, J., Zheng, C., Zhang, X., Zhang, A., Qi, H. (2019). Phthalate pollution driven by the industrial plastics market: a case study of the plastic market in Yuyao City, China. Environmental Science and Pollution Research 26(11):11224-11233.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433502

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Monitoring; Monitoring
Solvent, Reactivity, Storage, Stability	hexane; NR; NR; NR
Radiolabel, Source, State, Purity	None; Zhen Xiang Technology Co., Ltd. (Beijing, China); NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	soil and vegetation samples were collected at 21 sites downwind of a plastic market in Yuyao City, Zhejiang Province, China.; Sample locations are indicated on map; not applicable (field samples)
System Type Design	not applicable (field samples)
Sampling Frequency and Sampling Details	collected in May 2017.; sampling method referenced; field and procedural blanks included
Test Temperature	not applicable (field samples)
Results Details	soil concentrations: 1077-21,985 ng/g (specific sample site concentrations reported in supplemental material); vegetation concentrations: reported in supplemental material
Analytical Method and Analytical Details	GC-MSD; average recovery for surrogate DEHP-D4 97±25% (soil), 91±22% (vegetation); method detection limit 0.08-4.5 and 0.46-18 ng/g for soil and vegetation, respectively (specific results reported in supplementary material
Transformation Products, Statistics, and Kinetics	not applicable (field samples); t test; Pearson's correlation analysis and regression modeling.; 98.4% of PAE in soil were combined DEHP, DBzP, DiBP, DnBP; 82.1% of PAE in vegetation was DEHP
Reference Substance and Reference Substance Results	not applicable; The recoveries of PAEs spiked soil samples were 60.46%–121.77% and spiked vegetable samples were 69.30%–114.36%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Concurrent controls were included.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Samples were collected at the same sample cites concurrently.
Metric 7:	Testing Consistency	High	Field samples collected consistently.

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Study Citation:	Wu, Y., Sun, J., Zheng, C., Zhang, X., Zhang, A., Qi, H. (2019). Phthalate pollution driven by the industrial plastics market: a case study of the plastic market in Yuyao City, China. Environmental Science and Pollution Research 26(11):11224-11233.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433502

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Uninformative	There were sources of variability and uncertainty in the measurements and statistical techniques or between study groups resulting in serious flaws that make the study unusable. The source of deposition not identified; atmospheric cycling/transport not ascertained.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm the process for chemical deposition.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	vertical subsurface-flow; gravel substrate (10-20 mm, porosity of 50%); Thalia dealbata plants; 0.5 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	48% DEHP removal; effluent parameters (% removal): temp 28.9±3°C; pH 6.9±0.1; dissolved oxygen 2.8±0.1 mg/L; chemical oxygen demand 55.6±19.1 (73%) mg/L; suspended solids 10.2±2.6 (74%) mg/L; ammonium nitrogen 7.6±1.9 (65%) mg/L; total phosphate 1.6±0.1 (45%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±3%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	vertical subsurface-flow; vesuvianite (25–45 mm, porosity of 75%); unplanted; 0.25 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	45% DEHP removal; effluent parameters (% removal): temp 28.2±2.3°C; pH 7.1±0.1; dissolved oxygen 3.5±0.2 mg/L; chemical oxygen demand 58.9±24.0 (72%) mg/L; suspended solids 8.2±1.0 (79%) mg/L; ammonium nitrogen 5.3±2.2 (75%) mg/L; total phosphate 1.8±0.2 (38%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±2%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	vertical subsurface-flow; zeolite (20–40 mm, porosity of 58%); Arundo donax var. versicolor plants; 0.125 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	49% DEHP removal; effluent parameters (% removal): temp 27.9±1.9°C; pH 7.0±0.1; dissolved oxygen 3.9±0.2 mg/L; chemical oxygen demand 43.4±17.6 (79%) mg/L; suspended solids 7.4±5.5 (82%) mg/L; ammonium nitrogen 3.6±1.2 (83%) mg/L; total phosphate 1.6±0.1 (47%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±2%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	upward subsurface-flow; gravel substrate (10-20 mm, porosity of 50%); Arundo donax var. versicolor plants; 0.25 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	28% DEHP removal; effluent parameters (% removal): temp 28.0±2.4°C; pH 6.9±0.2; dissolved oxygen 1.3±0.2 mg/L; chemical oxygen demand 64.1±5.8 (69%) mg/L; suspended solids 10.1±1.8 (75%) mg/L; ammonium nitrogen 17.8±2.0 (17%) mg/L; total phosphate 2.6±0.2 (14%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±5%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	upward subsurface-flow; vesuvianite (25–45 mm, porosity of 75%); Thalia dealbata plants; 0.125 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	30% DEHP removal; effluent parameters (% removal): temp 28.1±3.2°C; pH 6.9±0.3; dissolved oxygen 0.9±0.2 mg/L; chemical oxygen demand 58.8±17.4 (72%) mg/L; suspended solids 13.6±2.8 (66%) mg/L; ammonium nitrogen 12.3±2.3 (42%) mg/L; total phosphate 1.9±0.5 (36%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±4%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	upward subsurface-flow; zeolite (20–40 mm, porosity of 58%); unplanted; 0.5 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	19% DEHP removal; effluent parameters (% removal): temp 28.1±2.8°C; pH 6.8±0.4; dissolved oxygen 1.2±0.2 mg/L; chemical oxygen demand 82.1±12.9 (60%) mg/L; suspended solids 11.1±1.4 (72%) mg/L; ammonium nitrogen 7.1±0.4 (67%) mg/L; total phosphate 1.7±0.2 (45%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±4%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	surface-flow; gravel substrate (10-20 mm, porosity of 50%); Arundo donax var. versicolor plants; 0.25 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	23% DEHP removal; effluent parameters (% removal): temp 27.7±2.6°C; pH 7.1±0.2; dissolved oxygen 0.7±0.1 mg/L; chemical oxygen demand 69.2±23.6 (67%) mg/L; suspended solids 8.3±0.3 (79%) mg/L; ammonium nitrogen 18.9±2.7 (11%) mg/L; total phosphate 2.3±0.2 (23%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±6%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	surface-flow; zeolite (20–40 mm, porosity of 58%); Thalia dealbata plants; 0.125 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	27% DEHP removal; effluent parameters (% removal): temp 27.4±2.3°C; pH 7.0±0.3; dissolved oxygen 0.9±0.2 mg/L; chemical oxygen demand 67.6±11.2 (67%) mg/L; suspended solids 8.7±1.2 (78%) mg/L; ammonium nitrogen 13.5±0.9 (37%) mg/L; total phosphate 1.7±0.2 (44%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±6%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	surface-flow; vesuvianite (25–45 mm, porosity of 75%); unplanted; 0.5 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	20% DEHP removal; effluent parameters (% removal): temp 28.8±2.9°C; pH 7.1±0.3; dissolved oxygen 0.8±0.2 mg/L; chemical oxygen demand 81.9±13.0 (60%) mg/L; suspended solids 9.2±0.8 (77%) mg/L; ammonium nitrogen 9.6±2.3 (55%) mg/L; total phosphate 2.4±0.2 (19%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±4%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	horizontal subsurface-flow; gravel substrate (10-20 mm, porosity of 50%); unplanted; 0.125 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	34% DEHP removal; effluent parameters (% removal): temp 29.1±3.8°C; pH 7.2±0.2; dissolved oxygen 0.3±0.2 mg/L; chemical oxygen demand 68.2±13.1 (67%) mg/L; suspended solids 8.6±0.5 (78%) mg/L; ammonium nitrogen 15.8±1.8 (26%) mg/L; total phosphate 1.7±0.2 (45%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±3%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	horizontal subsurface-flow; zeolite (20–40 mm, porosity of 58%); Thalia dealbata plants; 0.25 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	21% DEHP removal; effluent parameters (% removal): temp 28.7±2.7°C; pH 6.9±0.2; dissolved oxygen 0.5±0.1 mg/L; chemical oxygen demand 50.2±16.4 (76%) mg/L; suspended solids 7.9±1.0 (80%) mg/L; ammonium nitrogen 13.2±3.3 (38%) mg/L; total phosphate 2.5±0.4 (15%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±6%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-2-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Analytical grade methanol; NR; NR; 4°C
Radiolabel, Source, State, Purity	No; Dr. Ehrenstorfer (Germany); NR; 99% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Constructed wetlands testing water flow type, substrate, plant type and hydraulic loading rate. 19 month stabilization period.; Initial DEHP concentration 12.5±2.2 ug/L; pH 7.0±0.2; dissolved oxygen 1.5±0.2 mg/L; chemical oxygen demand 207.2±18.5 mg/L; suspended solids 39.9±13.9 mg/L; ammonium nitrogen 21.4±2.2 mg/L; total phosphate 2.9±0.1; parameters were measured and recorded.
System Type Design	horizontal subsurface-flow; vesuvianite (25–45 mm, porosity of 75%); Arundo donax var. versicolor plants; 0.5 m/day hydraulic loading rate
Sampling Frequency and Sampling Details	influent and effluent; For a 6-day period (n = 6), composite water samples were collected over each 24-hour day, from the Constructed Wetlands influent and effluent points, for a total of 12 samples.; collected in 1-L glass amber sampling bottle; sample pH values were adjusted to 3; samples were stored at 4°C before analysis (within 48 h).
Test Temperature	29.2±3.3°C
Results Details	31% DEHP removal; effluent parameters (% removal): temp 29.0±2.6°C; pH 6.8±0.2; dissolved oxygen 0.4±0.2 mg/L; chemical oxygen demand 62.1±14.3 (70%) mg/L; suspended solids 9.1±0.1 (77%) mg/L; ammonium nitrogen 17.8±1.7 (17%) mg/L; total phosphate 1.4±0.1 (54%)
Analytical Method and Analytical Details	Solid phase extraction; GC-FID; limit of quantification 0.08-0.23 ug/L; compound recovery 74-108%; Procedural blanks, solvent blanks, spikes, internal standards and QC samples were included in the extraction and analysis.
Transformation Products, Statistics, and Kinetics	not reported; ±5%; Sum of squares of deviations 10747.69, 359.19, 437.92, 941.58; degree of freedom 3, 2, 2, 2; mean square (SS/Df) 3582.56, 179.60, 218.98, 470.79 all based on flow type, substrate, plant, haudralic load rates, respectively.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.

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Study Citation:	Xiaoyan, T., Suyu, W., Yang, Y., Ran, T., Yunv, D., Dan, A., Li, L. (2015). Removal of six phthalic acid esters (PAEs) from domestic sewage by constructed wetlands. Chemical Engineering Journal 275:198-205.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3072185

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xie, Z., Ebinghaus, R., Temme, C., Caba, A., Ruck, W. (2005). Atmospheric concentrations and air-sea exchanges of phthalates in the North Sea (German Bight). Atmospheric Environment 39(18):3209-3219.
OECD Harmonized Template:	Miscellaneous
HERO ID:	102787

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; Calculation; Calculation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Augsburg, Germany; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Two-film resistance model based upon relative air-sea concentrations; Detection limit = 3.4 ng/m3; Matrix spikes, breakthrough check, field blanks, method detection limits applied
System Type Design	Water samples from 4.5 m depth; air samples at 9 m above sea surface
Sampling Frequency and Sampling Details	Monthly; Air sampling stopped at wind speed <3 m/sec. Sample storage described elsewhere
Test Temperature	Not applicable
Results Details	Air-sea vapor exchange flux. Mass transfer coefficient : 97X10-3 m-day. Flux: +53 ng/cu m-day (avg)
Analytical Method and Analytical Details	Overall flux calculation based on phase concentration, mass transfer and Henry's Law corrected for water temp and salinity; PUF-XAD2 columns and GC-MS for grab samples;
Transformation Products, Statistics, and Kinetics	Not applicable; Concentration in water: 0.52 to 5.3 ng/L with ND to 0.2 ng/L total suspended matter; concentration in air: 0.22 to 0.36 ng/m3 (vapor) with 0.95 to 1.1 ng/m3 particulate; salinity: 27.8-34.9%; 3.8-6.3°C; Particle-associated fraction: 78%
Reference Substance and Reference Substance Results	Not reported; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported, and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study group.

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Study Citation:	Xie, Z., Ebinghaus, R., Temme, C., Caba, A., Ruck, W. (2005). Atmospheric concentrations and air-sea exchanges of phthalates in the North Sea (German Bight). Atmospheric Environment 39(18):3209-3219.
OECD Harmonized Template:	Miscellaneous
HERO ID:	102787

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentration, extraction efficiency, percent recovery, or mass balance were reported and analytical methods used were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Yager, T. J. B., Furlong, E. T., Kolpin, D. W., Kinney, C. A., Zaugg, S. D., Burkhardt, M. R. (2014). Dissipation of contaminants of emerging concern in biosolids applied to nonirrigated farmland in eastern Colorado. Journal of the American Water Resources Association 50(2):343-357.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2346027

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; Di(ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; biosolids; NR; NR Notes: 180 day weathered biosolids
Test Method Details, Test Condition Details, and Test Consistency Details	Agronomic biosolids were applied to nonirrigated farmland and sampled. Dewatered municipal biosolids resulting from secondary treatment May 2-7, 2007; biosolids were partially incorporated in the soil using a rotating, tractor-pulled aerator. A crop of winter wheat was planted four months after biosolids were applied and harvested after 14 months.; The study area was in the eastern plains of Colorado, northeast of Denver. Soil classified as sandy loam (ca. 79% sand, ca. 20% clay, ca. 0.1% silt).; Variability found for analytes discussed in the supporting information file
System Type Design	crop field study with regular sampling
Sampling Frequency and Sampling Details	-7, 3, 17, 41, 90, 180 days post biosolid application; Weathered biosolids were collected from the land surface at 17, 41, 90, and 180 days post-application, separated from the soil. Soil was sampled seven days prior to biosolids. Soil sampling at each selected sampling node, 0-126 cm below land surface, sampled as seven separate vertical depth increments.
Test Temperature	NA
Results Details	Highest value detected in biosolid (69,500 ug/kg, est.), soil (782 ug/kg) and crop (<2000 ug/kg). DEHP was one of the monitored substances that were present in the largest concentration in six-month weathered biosolids and dissipated rapidly to pre-application levels after 180 days.
Analytical Method and Analytical Details	GC/MS; Biosolids and soil samples analyzed using pressurized solvent extraction, solid phase extraction, and capillary-column gas chromatography/mass spectrometry; crop samples measured with a modification of method from Burkhardt et al. (2006)
Transformation Products, Statistics, and Kinetics	NR; Not Reported; NR
Reference Substance and Reference Substance Results	laboratory blank, spiked samples, internal standards and continuing calibration verification samples were analyzed; reported in supporting information files

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this study type.
Domain 3: Test Conditions				

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Study Citation:	Yager, T. J. B., Furlong, E. T., Kolpin, D. W., Kinney, C. A., Zaugg, S. D., Burkhardt, M. R. (2014). Dissipation of contaminants of emerging concern in biosolids applied to nonirrigated farmland in eastern Colorado. Journal of the American Water Resources Association 50(2):343-357.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2346027

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance and nominal estimates of media concentrations were provided, these deviations or omissions were not likely to have a substantial impact on study results
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions and variablility in the samples.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	The system type and design were not capable of appropriately maintaining substance concentrations or not described but the deviation was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment, estimates were reported for many values.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Dissipation could be attributed to various processes and analysis and discussion did not include all monitored substances. This makes it difficult to form conclusions on all substances analyzed.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

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Study Citation:	Yager, T. J. B., Furlong, E. T., Kolpin, D. W., Kinney, C. A., Zaugg, S. D., Burkhardt, M. R. (2014). Dissipation of contaminants of emerging concern in biosolids applied to nonirrigated farmland in eastern Colorado. Journal of the American Water Resources Association 50(2):343-357.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2346027

EVALUATION

Domain	Metric	Rating	Comments

* Related References: Supporting information files were used to review the data and perform the evaluation.

Study Citation:	Yin, R., Lin, X. G., Wang, S. G., Zhang, H. Y. (2003). Effect of DBP/DEHP in vegetable planted soil on the quality of capsicum fruit. Chemosphere 50(6):801-805.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5540685

EXTRACTION

Parameter	Data
CASRN and Test Material	84-74-2; di(2-ethylhexyl)phthalate
Confidentiality, Type, Guideline	None; monitoring in sewage sludge/biosolids from various countries; monitoring in sewage sludge/biosolids from various countries
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Concentrations in sewage sludge/biosolids from 10 countries from 1989 to 2009.; WWTPs not specified; analytical methods not specified.; not applicable
System Type Design	not applicable
Sampling Frequency and Sampling Details	not applicable; Not reported
Test Temperature	not applicable
Results Details	Overall mean: 58 mg/kg dw; Minimum <0.02 mg/kg dw; Maximum 3514 mg/kg dw
Analytical Method and Analytical Details	not applicable; not applicable
Transformation Products, Statistics, and Kinetics	not applicable; not applicable; not applicable
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method was not reported or not suitable for the test substance.
Metric 6:	Testing Conditions	N/A	No test was reported.
Metric 7:	Testing Consistency	N/A	No test was reported.
Metric 8:	System Type and Design	N/A	No test was reported.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Yin, R., Lin, X. G., Wang, S. G., Zhang, H. Y. (2003). Effect of DBP/DEHP in vegetable planted soil on the quality of capsicum fruit. Chemosphere 50(6):801-805.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5540685

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	No test was reported.
	Metric 12:	Test Substance Purity	N/A	No test was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No test was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No test was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Data presented from various sources without context.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Yoshida, H., Christensen, T. H., Guildal, T., Scheutz, C. (2013). A comprehensive substance flow analysis of a municipal wastewater and sludge treatment plant. Chemosphere 138:874-882.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2149436

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	none; Monitoring study; Monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; wastewater; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Flow analyses of a conventional wastewater treatment plant in Denmark.; Plant description: wastewater treated = 25.3 million m3/year, generated by population of 265,000.; not reported
System Type Design	WWTP using biological and thermal processes.
Sampling Frequency and Sampling Details	not reported; Sampling was conducted over 10 weeks; 120 samples were collected from 12 processing streams within the treatment plant.
Test Temperature	not reported
Results Details	Source of DEHP treated at WWTP: % introduced by influent: ca. 87%; % introduced by internal recycling flow of centrate: ca. 13%. Wastewater treatment: 10% contained in effluent water; ca. 70% contained in primary sludge; ca. 20% contained in secondary sludge. Sludge treatment: ca. 20% contained in dewatered sludge; ca. 15% contained in centrate.
Analytical Method and Analytical Details	GC-MS; EPA method 8061A, EPA method 8082
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
Metric 2:	Test Substance Purity	Medium	Analytical standard not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
Metric 6:	Testing Conditions	High	Operational conditions were reported.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
Metric 8:	System Type and Design	High	The treatment system was appropriate.
Domain 4: Test Organisms			

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Study Citation:	Yoshida, H., Christensen, T. H., Guildal, T., Scheutz, C. (2013). A comprehensive substance flow analysis of a municipal wastewater and sludge treatment plant. Chemosphere 138:874-882.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2149436

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Removal rates were not reported.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	The intended outcome of interest was not evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

Study Citation:	Yu, C., Chu, K. (2009). Occurrence of pharmaceuticals and personal care products along the West Prong Little Pigeon River in east Tennessee, USA. Chemosphere 75(10):1281-1286.
OECD Harmonized Template:	Miscellaneous
HERO ID:	697702

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	test substance sorbed to suspended sediment extracted with ether; NR; samples collected in amber glass containers, stored on ice, and processed within 12 hours; NR
Radiolabel, Source, State, Purity	NA; 4 sites (influent and effluent to 2 WWTPs) along the West Prong Little Pigeon River, Tennessee; NR; NA Notes: Analytical standard DEHP >97% pure was purchased from Fluka Chemika (Buchs, Switzerland)
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples taken from two WWTP plants along the West Prong Little Pigeon River in Tennessee to determine pollutant removal efficiency.; Not reported; WWTP 1 treats 11,000 m^3/d wastewater (average cBOD 104 mg/L)WWTP 2 treats 15,000 m^3/d (average cBOD 201 mg/L)
System Type Design	Not reported
Sampling Frequency and Sampling Details	Not reported; Samples collected as grab samples
Test Temperature	Not reported
Results Details	WWTP1 97% removal; WWTP2 > 99% removalInfluent 1: 1026 ng/L dissolved, 29020 ng/g sorbedEffluent 1: 12500 ng/g sorbedInfluent 2: 166 ng/L dissolved, 30290 ng/g sorbedEffluent 2: n.d.
Analytical Method and Analytical Details	gas chromatography–mass spectrometry; MDL: 103 ng/L; Filtered samples extracted by SPE, eluted with methanol; filtered suspended particles extracted with ether; Extraction recovery 36%
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the samples were reported, and the source and purity of the analytical standard was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Analytical or field blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	The sample storage conditions and test substance extraction method were reported and appropriate for the test substance.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No WWTP operational stages or conditions were reported.
	Metric 7:	Testing Consistency	High	Sampling and analytical methods were consistent across all groups.

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Study Citation:	Yu, C., Chu, K. (2009). Occurrence of pharmaceuticals and personal care products along the West Prong Little Pigeon River in east Tennessee, USA. Chemosphere 75(10):1281-1286.
OECD Harmonized Template:	Miscellaneous
HERO ID:	697702

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was sufficient for determining removal efficiency.
	Metric 12:	Test Substance Purity	Medium	Sampling intervals or frequency were not reported, but sampling collection methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical method was appropriate, limits of detection and extraction efficiency were reported and sufficient for WWTP removal efficiency study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical methods were not applied.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable but broader conclusions cannot be determined without WWTP operational details.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1249569

EXTRACTION

Parameter	**Data**
CASRN and Test Material	84-74-2; Di-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Chem Service (West Chester, PA, USA); NR; 99.0% Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	Biodegradation using sewage sludge from Neihu municipal sewage treatment plant in Taipei in a bioreactor (sludge concentrations of DBP and DEHP = 0.11 and 0.29 mg/kg, respectively; bacterial count = 4.5 × 107 CFU/g); autoclaved sterile control included.; Aerobic conditions in the dark at pH 6.9 (adjusted with potassium hydroxide) using a microbial culture medium.; concentration of test material 20-250 mg/kg
System Type Design	bioreactor aerated with stone diffusers at the bottom of the reactor with 12-gauge galvanized wire
Sampling Frequency and Sampling Details	approx. every 2 days; Air dried sludge samples were dispersed in double deionized water and filtered.
Test Temperature	30°C
Results Details	0-15% remaining test substance after 10 days (not detected at 50 and 100 mg/kg; 15% at 250 mg/kg).
Analytical Method and Analytical Details	GC-ECD; extraction recovery 98%; detection limit = 1.0 µg/L
Transformation Products, Statistics, and Kinetics	not reported; r=0.94-0.98; k1=0.11-0.24 days-1 (first-order kinetics); t1/2=2.9-6.3 days in sludge
Reference Substance and Reference Substance Results	sterile sludge; 91.3-96.5% remaining test substance after 10 days, DBP concentrations of 50, 100, and 250 mg/kg

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The test substance source or purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were used.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage was reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate for the study type.
Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms			

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Study Citation:	Yuan, S. Y., Lin, Y. Y., Chang, B. V. (2011). Biodegradation of phthalate esters in polluted soil by using organic amendment. Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes 46(5):419-425.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1249569

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	Medium	The test inoculum source was reported and the test inoculum is routinely used for similar study types; target chemical was detected in sludge prior to experiment.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty were not reported but their omission likely did not impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some statistical details were not reported; however, these omissions were not likely to have a substantial impact on interpretation of the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zeng, F., Cui, K., Xie, Z., Liu, M., Li, Y., Lin, Y., Zeng, Z., Li, F. (2008). Occurrence of phthalate esters in water and sediment of urban lakes in a subtropical city, Guangzhou, South China. Environment International 34(3):372-380.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698257

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; Environmental monitoring of both sediment and water; Environmental monitoring of both sediment and water
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; monitoring study of 15 urban lakes in Guangzhou city; NR; NR Notes: Analytical standards from Dr. Ehrenstorfer (Augsburg, Germany)
Test Method Details, Test Condition Details, and Test Consistency Details	NA; 15 urban lakes in Guangzhou city. Water DOC and sediment TOC in the urban lake of this area were investigated and ranged from 1.13 to 6.87%, 0.281 to 3.76 mg L−1, with the average value of 3.34%, 1.97 mg L−1, respectively.; To eliminate randomicity, each sample consisted of 5 subsamples collected within a surface area of 100×100 m, about 20 m far from the shore, and were well mixed.
System Type Design	NR
Sampling Frequency and Sampling Details	Not Reported; 30 samples, 15 water and sediment samples each, collected from May 10–15, 2005. Water samples were collected in 10 L pre-cleaned glass bottles using a frame that allows the bottle to be opened underwater to avoid the collection of the surface microlayer. The samples were stored at 4±2 °C in a cooler. Sediments were collected using a stainless steel grab sampler. The top 10-cm layer of sediments was scooped, using a pre-cleaned stainless steel scoop, into solvent rinsed glass jars. The samples were cooled in a refrigerator (0 °C) during transport to the laboratory where they were stored at −20 °C.
Test Temperature	mean air temperature of 21.8 °C for Guangzhou area of about 7500 sq. km
Results Details	Dissolved phase: 0.087-0.63 ug/L (0.24 Mean), Detectable frequency 100%. Sediment phase: 0.21-14.16 ug/g dw (3.64 Mean), Detectable frequency 100%
Analytical Method and Analytical Details	GC-MS; For each batch of 10 field samples, a procedural blank, a spiked blank, a spiked matrix sample, a spiked matrix duplicate, and a sample duplicate were processed.
Transformation Products, Statistics, and Kinetics	NR; Not Reported; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	Not applicable: Monitoring study
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported (e.g., mixing temperature, stock concentration, stirring methods, centrifugation or filtration), and were appropriate for the study
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zeng, F., Cui, K., Xie, Z., Liu, M., Li, Y., Lin, Y., Zeng, Z., Li, F. (2008). Occurrence of phthalate esters in water and sediment of urban lakes in a subtropical city, Guangzhou, South China. Environment International 34(3):372-380.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698257

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment; concentrations in soil and water measured, but partition coefficients were not calculated.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentration, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Medium

Study Citation:	Zhan, Y., Sun, J., Luo, Y., Pan, L., Deng, X., Wei, Z., Zhu, L. (2016). Estimating Emissions and Environmental Fate of Di-(2-ethylhexyl) Phthalate in Yangtze River Delta, China: Application of Inverse Modeling. Environmental Science & Technology 50(5):2450-2458.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350330

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; calculation; calculation
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Gridded Level-III multimedia model (steady-state, nonequilibrium) developed to simulate distribution and fate of the test substance in the Yangtze River Delta region (southern Jiangsu province, northern Zhejiang province, and part of Shanghai), China; Input data: concentrations in soil, chemical properties, and environmental conditions (atmospheric particulate matter); Air advection derived from wind direction and speed, water advection modeled using stream hydrological data; sensitivity analyzed by Sobol method, uncertainty estimated using the Monte Carlo method.
System Type Design	141 cells; compartments: air, water, rural soil, urban soil, urban film, and sediment
Sampling Frequency and Sampling Details	Not applicable; Not applicable
Test Temperature	Not applicable
Results Details	Relationship between concentrations in air and soil: [air, μg/m^3] = 0.53*[soil, μg/kg] + 23.29
Analytical Method and Analytical Details	Not applicable; Not applicable
Transformation Products, Statistics, and Kinetics	Not applicable; Linear regression; predicted values well correlated with previous monitoring study ($r = 0.58$, $p < 0.01$); Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for calculations.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for calculations.
	Metric 4:	Test Substance Stability	N/A	Not applicable for calculations.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Model inputs were described, and may be reported in depth in supplemental information.
	Metric 7:	Testing Consistency	N/A	Not applicable for calculations.
	Metric 8:	System Type and Design	N/A	Not applicable for calculations.

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Study Citation:	Zhan, Y., Sun, J., Luo, Y., Pan, L., Deng, X., Wei, Z., Zhu, L. (2016). Estimating Emissions and Environmental Fate of Di-(2-ethylhexyl) Phthalate in Yangtze River Delta, China: Application of Inverse Modeling. Environmental Science & Technology 50(5):2450-2458.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3350330

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for calculations.
	Metric 10:	Sampling Methods	N/A	Not applicable for calculations.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Compartment predictions addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sensitivity and uncertainty analyses were conducted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for calculations.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and model calculations were described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The model predicted concentrations agreed with a previous monitoring study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Zhang, Z. M., Zhang, H. H., Zou, Y. W., Yang, G. P. (2018). Distribution and ecotoxicological state of phthalate esters in the sea-surface microlayer, seawater and sediment of the Bohai Sea and the Yellow Sea. Environmental Pollution 240:235-247.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433212

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di-ethylhexyl phthalate
Confidentiality, Type, Guideline	None; monitoring study; monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; environmental; NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	seawater and sediment samples were collected from the Bohai Sea (BS) and the Yellow Sea (YS); Not Reported; Not Reported
System Type Design	not applicable
Sampling Frequency and Sampling Details	Nov 9-23, 2014; 46 surface water samples, 29 samples at different water depths and 35 sea-surface microlayer (SML) samples as well as 38 sediment samples were collected.
Test Temperature	not applicable
Results Details	detected in 100% of samples: 61.6-4352 ng/L (from table: does not include all samples) in seawater; sediment not reported, but may be in supplemental information
Analytical Method and Analytical Details	GC/MS; recoveries: 68.0-114.0% and 76.4-105.0% in seawater and sediment samples, respectively; blank concentrations subtracted from sample results; detection limits: 0.04-0.32 ng/L for seawater and 0.12-1.6 ug/kg dry weight for sediment
Transformation Products, Statistics, and Kinetics	not applicable; 33.3% and 20.3% of total PAE in seawater and sediment, respectively; risk quotient values for DEHP were >1 for algae and crustaceans, indicating high risk to these organisms; risk quotient values for DEHP were 0.01-1 for fish and crustaceans, indicating a medium risk; DEHP in sediment represents no risk to fish, crustaceans or algae
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	High	The test substance sampling and storage conditions were reported, and were appropriate for the study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, information may be available in supplemental documentation.

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Study Citation:	Zhang, Z. M., Zhang, H. H., Zou, Y. W., Yang, G. P. (2018). Distribution and ecotoxicological state of phthalate esters in the sea-surface microlayer, seawater and sediment of the Bohai Sea and the Yellow Sea. Environmental Pollution 240:235-247.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5433212

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Not enough data was presented to calculate partitioning.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	the differences in the measurements and statistical techniques were considered or accounted for in data evaluation with omissions and the omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination NEED TO FIX

Study Citation:	Zhang, Z., Lei, Z., Sugiura, N., Xu, X., Yin, D. (2007). Organics removal of combined wastewater through shallow soil infiltration treatment: A field and laboratory study. Journal of Hazardous Materials 149(3):657-665.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6821981

EXTRACTION

Parameter	Data
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Wastewater; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Combined domestic wastewater from toilets, restaurants, and wastewater from a gas station; Liquid; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Combined wastewater collected from domestic sources and a gas station was treated by shallow soil infiltration system to determine removal efficiency of selected substances. Eight runs were conducted between February to August 2006.; Trench characteristics: % soil; % coal slag; % dewatered sludge; % packing material; hydraulic conductivity (cm/s)T1: 70%; 20%; 10%; NA; 0.059 ; T2, 3, 4: 60%; 20%; 10%; 10% wood chips, anthracite, or zeolite; 1.023, 0.445, or 0.099; Wastewater characteristicsCOD: 53 - 180 mg/LpH 7.06 - 7.18Suspended solids: 34 - 65 mg/LTotal nitrogen: 8.5 - 21.4 mg/LAmmonia nitrogen: 4.9 - 14.0 mg/LTotal phosphorus: 0 - 7.7 mg/LBOD5/COD (5-d average): 0.6
System Type Design	Influent, pre-aeration tank, sedimentation tank, 4 parallel infiltration trenches (15 m^2 in area, 0.5 m total depth and 0.3 m effective depth) with different solids, effluent
Sampling Frequency and Sampling Details	Feb 5 - 20; Feb 17 - Mar 6; Mar 18 - Apr 10; Apr 18 - May 6; May 18 - June 5; June 12 - 27; July 5- 19; July 27 - Aug 10; Influent, effluent from pretreatment, and effluent from trenches collected once every 2-3 days in the field
Test Temperature	0.0-37.0°C
Results Details	Average removal efficiency: 55.4% (Mar 8), 39.4% (Aug 5)Average influent: 8.376 µg/L (Mar 8), 2.004 µg/L (Aug 5)Average pretreatment effluent: 4.811 µg/L (Mar 8), 1.734 µg/L (Aug 5)Average trench effluent: 3.739 µg/L (Mar 8), 1.214 µg/L (Aug 5)
Analytical Method and Analytical Details	GC/MS, VF-5ms capillary column (30 m x 0.25 mm, 0.25 um); Samples extracted 3x with methylene dichloride
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The wastewater source was reported generally.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls or analytical blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Wastewater sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate testing conditions and wastewater characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across runs.

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Study Citation:	Zhang, Z., Lei, Z., Sugiura, N., Xu, X., Yin, D. (2007). Organics removal of combined wastewater through shallow soil infiltration treatment: A field and laboratory study. Journal of Hazardous Materials 149(3):657-665.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6821981

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and were samples were collected at an appropriate frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The results from all runs were not reported. The two reported runs may not be representative.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and recovery were not reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method although the results from all the runs were not reported. The results were more efficient than a previous study reportedly due to different soil characteristics and operating conditions.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Zheng, Z., He, P., Shao, L., Lee, D. (2007). Phthalic acid esters in dissolved fractions of landfill leachates. Water Research 41(20):4696-4702.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698282

EXTRACTION

Parameter	**Data**
CASRN and Test Material	117-81-7; DEHP
Confidentiality, Type, Guideline	None; Field Study; Field Study
Solvent, Reactivity, Storage, Stability	Water samples: eluted from SPE with methylene chloride and acetone as elution solvents before being condensedSoil samples: eluted from column with acetone/n-hexane mixture as elution solvents before being condensed; NR; Water samples: 4L brown glass amber bottles at 4°CSoil samples: aluminum foil bags at 4°C; NR
Radiolabel, Source, State, Purity	NA; Groundwater, surface water, leachate, and soil samples from MSW landfill in Wuhan, China; Liquid and solid samples; NA Notes: Source and purity of internal standards not reported
Test Method Details, Test Condition Details, and Test Consistency Details	5 leachate samples, 8 ground water samples, 4 surface water samples, and 6 soil samples were collected from various sites in a MSW landfill; samples collected December 2007 from a MSW landfill in Wuhan, China; Not Reported
System Type Design	Not applicable
Sampling Frequency and Sampling Details	single sampling; sampling methods Not reported leachate pH 7.4-7.82; COD 7138-24856 mg/L; BOD5 1000 - 5000 mg/L
Test Temperature	Not reported
Results Details	leachate (average): 3.98 µg/Lsurface water (average): 0.29 µg/Lgroundwater (average): 0.10 µg/Ltopsoil (average): 302.1 µg/kgoverburden (average): 3310.2 µg/kg
Analytical Method and Analytical Details	gas chromatography with FID detector; limits of detection not reported; extraction recover 61.7-97.8%
Transformation Products, Statistics, and Kinetics	Not reported; leachate (range, n=5): n.d. - 7.24 ug/Lsurface water (range, n=4): 0.09 - 0.65 ug/Lgroundwater (range, n=8): n.d. - 0.34 ug/Ltopsoil (range, n=4): 204.7 - 459.3 ug/kgoverburden (range, n=2): 281.3 - 6339.0 ug/kg; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported, and purity is not applicable for field studies. The source and purity of internal standards was not reported but is not expected to have a significant impact on study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Field studies do not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zheng, Z., He, P., Shao, L., Lee, D. (2007). Phthalic acid esters in dissolved fractions of landfill leachates. Water Research 41(20):4696-4702.
OECD Harmonized Template:	Miscellaneous
HERO ID:	698282

EVALUATION

Domain	Metric		Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some sample parameters were reported for liquid samples, but were not reported for solid samples; sufficient data was reported to determine that these omissions are not likely to have a substantial influence on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest and used widely accepted methods for the media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Ranges were reported in the study and considered in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical concentrations, extraction percentage range, and mass balance were reported; analytical methods were suitable although limits of detection were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were appropriate for the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Zhou, Y. Q., Liu, Y. X. (2013). [Occurrence and fate of phthalates in wastewater treatment plants in Beijing, China]. Huanjing Kexue / Chinese Journal of Environmental Science 34(4):1357-1362.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1936015

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di-(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	waste water removal; 3 treatment plants in Beijing: A: HRT 8-10 hours, SRT 8-12 days; B: HRT 6-8 hours, SRT 6-8 days; C: HRT 8-10 hours, SRT 8-12 days; not decipherable
System Type Design	not decipherable
Sampling Frequency and Sampling Details	not decipherable; not decipherable
Test Temperature	not decipherable
Results Details	90.5-90.7% removal
Analytical Method and Analytical Details	GC/MS; not decipherable
Transformation Products, Statistics, and Kinetics	not applicable; not decipherable; removal mechanism should be biodegradation and volatilization.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not accessible (if reported) due to limited English translation; however, the omissions or identified impurities were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not accessible (if reported) due to limited English translation; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Testing conditions were not accessible due to limited English translation.
	Metric 7:	Testing Consistency	Low	Testing consistency was not accessible due to limited English translation.

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Study Citation:	Zhou, Y. Q., Liu, Y. X. (2013). [Occurrence and fate of phthalates in wastewater treatment plants in Beijing, China]. Huanjing Kexue / Chinese Journal of Environmental Science 34(4):1357-1362.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1936015

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Complete outcome assessment was not accessible due to limited English translation.
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not accessible (if reported) due to limited English translation., and could have a substantial impact on study results
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Can not decipher if confounding variables were addressed due to limited English translation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Extraction efficiency, percent recovery, or mass balance were not accessible (if reported) due to limited English translation, preventing meaningful interpretation of study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Kinetic calculations were not accessible due to limited English translation.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			**Low**	

Study Citation:	Zhu, Y., Tian, J., Wu, G., Wei, F. (2012). [Estimation of the air-soil exchange of phthalates]. Huanjing Huaxue / Environmental Chemistry 31(10):1535-1541.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1599853

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; bis(2-ethylhexyl) phthalate
Confidentiality, Type, Guideline	None; monitoring; monitoring
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Field air samples were collected. Foreign language so other details are not extractable.; Foreign language so details are not extractable.; not applicable
System Type Design	not applicable
Sampling Frequency and Sampling Details	Foreign language so details are not extractable.; Air samples from an iron and steel plant and its surrounding residential areas and background areas in northeastern China.
Test Temperature	not applicable (field samples)
Results Details	estimated deposition rate: 1302.7-9839.6 g/m/square km
Analytical Method and Analytical Details	GC-MS; Foreign language so details are not extractable.
Transformation Products, Statistics, and Kinetics	not applicable; Foreign language so details are not extractable.; Foreign language so details are not extractable.
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	Foreign language so details are not extractable.
Metric 6:	Testing Conditions	Uninformative	Foreign language so details are not extractable.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Zhu, Y., Tian, J., Wu, G., Wei, F. (2012). [Estimation of the air-soil exchange of phthalates]. Huanjing Huaxue / Environmental Chemistry 31(10):1535-1541.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1599853

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Foreign language so details are not extractable.
	Metric 12:	Test Substance Purity	Uninformative	Foreign language so details are not extractable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Foreign language so details are not extractable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	Foreign language so details are not extractable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Uninformative

Study Citation:	Zolfaghari, M., Drogui, P., Seyhi, B., Brar, S. K., Buelna, G., Dube, R., Klai, N. (2015). Investigation on removal pathways of Di 2-ethyl hexyl phthalate from synthetic municipal wastewater using a submerged membrane bioreactor. Journal of Environmental Sciences 37:37-50.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3065576

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; di 2-ethyl hexyl phthalate
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Sigma-Aldrich Canada Ltd. (Oakville, ON, Canada); NR; NR Notes: DEHP
Test Method Details, Test Condition Details, and Test Consistency Details	laboratory scale submerged membrane bioreactor; synthetic wastewater: glucose, DEHP, (NH4)2SO4, KH2PO4, MgSO4, CaCl2·2H2O, FeCl3, Na2CO3, CuSO4, Na2MoO4·2H2O, MnSO4·H2O, ZnCl2, and CoSO4·7H2O; hydraulic retention time (HRT) 4, 6, 8 hr; membrane flux 10.64, 14.18, 21.28 L/(m2·hr); total solid (TS) 5.09–18.07 g/L; volatile solids (VS) 4.68–15.8 g/L, dissolved oxygen (DO) 3.1±0.5 mg/L, sludge retention time (SRT) 140 days; pH 7.2 ± 0.5.; dissolved oxygen always >2 mg O2/L; turbidity always <0.2 NTU.
System Type Design	aeration basin, continuous mixer, air diffuser, pressure gage, and influent and effluent pumps
Sampling Frequency and Sampling Details	twice/week; COD, VS, N-NH4, N-NOx, P-PO4, DEHP analysis
Test Temperature	18±1.5°C
Results Details	ca 100%; 62.4-88.6%; 67.7-97.8%; 96.4-99.8% removal at DEHP estimated loading of 0.08, 0.2, 0.4, 0.6 mg/L·day
Analytical Method and Analytical Details	GC/MS; Quadratic regression of peak area of standard samples against their concentration was used for the calibration curves.
Transformation Products, Statistics, and Kinetics	not reported; control experiment: 0.47% DEHP removal by air stripping, adsorption (inlet and outlet pipe) and retention with membrane; under steady state condition, lower HRT increases the sludge concentration resulting in more adsorption of DEHP and increase in DEHP removal efficiency
Reference Substance and Reference Substance Results	spiked solution; inlet and outlet recovery 71 and 78%

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.

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Study Citation:	Zolfaghari, M., Drogui, P., Seyhi, B., Brar, S. K., Buelna, G., Dube, R., Klai, N. (2015). Investigation on removal pathways of Di 2-ethyl hexyl phthalate from synthetic municipal wastewater using a submerged membrane bioreactor. Journal of Environmental Sciences 37:37-50.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3065576

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were as expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

Term	Definition
BAF	Biaccumulation Factor
BCF	Bioconcentration Factor
BMF	Biomagnification Factor
BSAF	Biota-sediment Accumulation Factor
C	Concentration
CASRN	Chemical Abstract Service registry number
DOC	Dissolved Organic Carbon
dw	Dry weight
DW	Drinking Water
DWTP	Drinking Water Treatment Plant
EPA	Environmental Protection Agency
ESI	Electrospray Ionisation
FID	Flame Ionisation Detector
FPD	Flame Photometric Detector
GC	Gas Chromatography
g/L	Grams per Liter
HLC	Henry's Law Constant
HPLC	High-performance liquid chromatography
ISO	International Organization for Standardization
K_{oa}	Octanol-Air partition coefficient
K_{oc}	Organic carbon-water partition coefficient
K_{ow}	Octanol-Water partition coefficient
L/d	Liters per day
LOD	Limit of Detection
LOQ	Limit of Quantification
lw	Lipid weight
M	Molarity (mol/L = moles per Liter)
mL/min	Milliliters per minute
mM	Millimolar
MDL	Method Detection Limit
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mg/m^3	Milligrams per cubic meter
MRL	Method Reporting Limit
MS	Mass Spectrometry
n	Sample Size
N/A	Not applicable
ND	Non-Detection
ng/L	Nanograms per Liter

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Term	Definition
nm	Nanometers
NR	Not Reported
OECD	Organisation for Economic Co-operation and Development
· OH	Hydroxyl radical
OPE	Organophosphate Ester
pg/L	Picograms per Liter
ppm	parts per million
QSAR	Quantatative Structure Activity Relationship
RSD	Relative Standard Deviation
SI	Supplemental Information
SIM	Selected Ion Monitoring
SPE	Solid Phase Extraction
STP	Sewage Treatment Plant
TMF	Trophic Magnification Factor
TOC	Total Organic Carbon
TOF	Time of Flight
μg/L or μg/mL	micrograms per liter or per milliliter
UPLC	Ultra-performance liquid chromatography
US or USA	United States of America
UV (UV-Vis)	Ultra Violet (Visible)
ww	Wet Weight
WWTP	Wastewater Treatment Plant