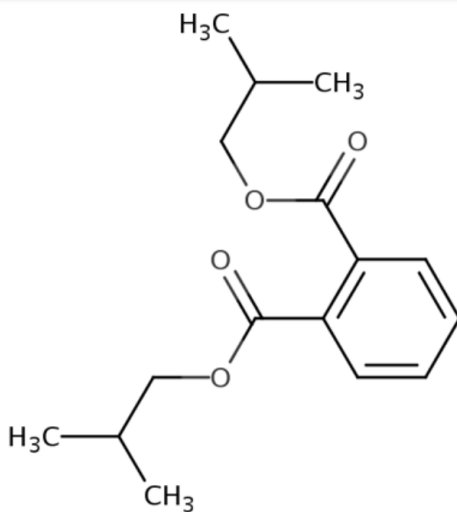

**Data Quality Evaluation and Data Extraction Information for
Environmental Fate and Transport for
Di-isobutyl Phthalate (DIBP)
(1,2-Benzenedicarboxylic acid, 1,2-bis(2-methylpropyl) ester)**

Systematic Review Support Document for the Draft Risk Evaluation

CASRN: 84-69-5



July 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 Diisobutyl Phthalate (DIBP)* 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 Diisobutyl Phthalate (DIBP)*. 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.

HERO ID	Reference	Page
Photolysis in Air		
5348332	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.	6
Hydrolysis		
5335927	Wolfe, N. L., Steen, W. C., Burns, L. A. (1980). Phthalate ester hydrolysis: Linear free energy relationships. Chemosphere 9(7):403-408.	8
Photolysis in Water		
Photolysis in Soil		
Biodegradation in Water		
11182937	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the CO2-evolution test (OECD Guideline 301B); Test substance: Diisobutyl phthalate.	10
11182939	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the closed bottle test (OECD Guideline 301D); Test substance: Diisobutyl phthalate.	13
3688160	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.	16
11182940	Harlan Laboratories, (2010). Di-isobutylphthalate (DIBP): Assessment of ready biodegradability; CO2 evolution test.	31
679647	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.	34
5508730	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.	37
6629592	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.	40
5348332	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.	48
789301	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.	50
Biodegradation in Sediment		
6629592	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.	52
Biodegradation in Soil		
1334165	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.	55
Aquatic Bioconcentration		
5353181	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.	57
3350326	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.	59

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5043593	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. <i>Environment International</i> 126:635-643.	61
789501	Mackintosh, C. E., Maldonado, J., Hongwu, J., Hoover, N., Chong, A., Ikononou, M. G., Gobas, F. A. (2004). Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. <i>Environmental Science & Technology</i> 38(7):2011-2020.	63
1249662	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). <i>Archives of Environmental Contamination and Toxicology</i> 63(1):101-113.	66
Terrestrial Bioconcentration		
3350219	LUA, (2016). Phthalate esters in soil, plastic film, and vegetable from greenhouse vegetable production bases in Beijing, China: Concentrations, sources, and risk assessment. <i>Science of the Total Environment</i> 568:1037-1043.	68
Adsorption and Desorption		
5433399	HEW, (2019). The occurrence, composition and partitioning of phthalate esters (PAEs) in the water-suspended particulate matter (SPM) system of Lake Chaohu, China. <i>Science of the Total Environment</i> 661:285-293.	70
3859571	Li, R., Liang, J., Duan, H., Gong, Z. (2017). Spatial distribution and seasonal variation of phthalate esters in the Jiulong River estuary, Southeast China. <i>Marine Pollution Bulletin</i> 122(1-2):38-46.	73
3483279	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. <i>Science of the Total Environment</i> 580(Elsevier):388-397.	75
807140	Lu, C. (2009). Prediction of environmental properties in water-soil-air systems for phthalates. <i>Bulletin of Environmental Contamination and Toxicology</i> 83(2):168-173.	77
680414	Tan, G. H. (1995). Residue levels of phthalate esters in water and sediment samples from the Klang river basin. <i>Bulletin of Environmental Contamination and Toxicology</i> 54(2):171-176.	79
680447	Vitali, M., Guidotti, M., Macilenti, G., Cremisini, C. (1997). Phthalate esters in freshwaters as markers of contamination sources: A site study in Italy. <i>Environment International</i> 23(3):337-347.	82
Miscellaneous		
3022721	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. <i>Journal of Geochemical Exploration</i> 155:56-61.	84
4728634	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. <i>Environmental Science and Pollution Research</i> 25(18):17321-17329.	86
1336447	Liu, H., Liang, Y., Zhang, D., Wang, C., Liang, H., Cai, H. (2010). Impact of MSW landfill on the environmental contamination of phthalate esters. <i>Waste Management</i> 30(8-9):1569-1576.	88
5348332	Peterson, D. R., Staples, C. A. (2003). Degradation of phthalate esters in the environment. <i>The Handbook of Environmental Chemistry book series HEC</i> 3Q:85-124.	90
2519056	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. <i>Chemosphere</i> 119C:43-51.	92
533749	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. <i>Analytical and Bioanalytical Chemistry</i> 383(5):857-863.	94
4728656	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. <i>Journal of Environmental Sciences</i> 61(Elsevier):49-58.	96
5433502	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. <i>Environmental Science and Pollution Research</i> 26(11):11224-11233.	98
5433212	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. <i>Environmental Pollution</i> 240:235-247.	100

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698282	Zheng, Z., He, P., Shao, L., Lee, D. (2007). Phthalic acid esters in dissolved fractions of landfill leachates. Water Research 41(20):4696-4702.	102
1599853	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.	104
Other Properties		
List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables		106

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	84-69-5; DiBP
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; 9.260X10 ⁻¹² cm ³ /molecule/s; Not Reported
Method Details Results and Products	NR; NR
Details Results	
Parameter Value and Parameter Results	21.4 hours (0.89 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 of property estimation methods for chemicals, environmental and health sciences. Lewis, Boca Raton, FL, p 335, chap 14 (not in distiller)

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	84-74-2; Di-iso-butyl phthalate
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 nm); Test substance extracted with benzene before GLC analysis; $\pm 0.2 \times 10^{-3} \text{ M}^{-1} \text{ sec}^{-1}$
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; $14 \times 10^{-3} \text{ M}^{-1} \text{ sec}^{-1}$; 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 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:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the CO2-evolution test (OECD Guideline 301B); Test substance: Diisobutyl phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11182937

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; Diisobutyl phthalate
Confidentiality, EndPoint, Type, Guideline	No; Ready biodegradability; Experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)
Solvent, Reactivity, Storage, Stability	None; NR; room temperature; NR
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR Notes: Batch No. 2527407A; substance number 02/0233-1
Blank and Control	NaOH blank control included; inhibition control included
Oxygen and Inoculum	aerobic; activated sludge, industrial (adaptation not specified): Activated sludge from the wastewater treatment plant of Mannheim.
Duration, Parameter, System, and Sampling Frequency	28 days; CO2 evolution/Theoretical CO2: Samples incubated and the CO2 produced is trapped and measured.; Measurements collected on day 0, 1, 3, 5, 7, 10, 12, 14, 17, 21, 24, 27, 28 and 29
pH Adjusted and pH	NR; NR
Concentration	ca. 29 - mg/L
Composition and Test Temperature	inorganic medium, with no details reported.; 22±2°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; aeration reported with no details; NR; 691 mg/G total organic carbon (TOC) calculated from the chemical formula
Results Details Method, Results per Degradation Parameter, and	NR; %CO2/ThCO2; NR
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	80%/28 days; NR; 28 days; 88%/28 days
Results Remarks and Results Details	Not Reported; 0%/0 days, 0%/1 day, 0%/3 days, 22%/5 days, 40%/7 days, 55%/10 days, 64%/12 days, 68%/14 days, 74%/17 days, 77%/21 days, 79%/24 days, 80%/27 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.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported or verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank control, toxicity control, and positive control were included.
	Metric 4:	Test Substance Stability	Medium	Some test substance stability, homogeneity, preparation and storage condition information was not reported; however, these factors were not likely to have a substantial impact on study results.

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Study Citation:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the CO2-evolution test (OECD Guideline 301B); Test substance: Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	11182937			
Domain	Metric	EVALUATION		Comments
		Rating		
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.
	Metric 8:	System Type and Design	Medium	The system type and design were not described in detail but 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 for the study method.
	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 omissions were 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, 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	Medium	The target chemical and transformation products 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	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the CO2-evolution test (OECD Guideline 301B); Test substance: Diisobutyl phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11182937

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		High	

Study Citation:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the closed bottle test (OECD Guideline 301D); Test substance: Diisobutyl phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11182939

Parameter		EXTRACTION		
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	No; ready biodegradability; experimental; OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test)			
Solvent, Reactivity, Storage, Stability	NR; NR; Storage at room temperature; NR			
Radiolabel, Source, State, Purity	NR; NR; Liquid; NR Notes: Batch No. 2527407A			
Blank and Control	blank control included; inhibition control included			
Oxygen and Inoculum	aerobic; other:: filtrated effluent from a municipal wastewater treatment plant in Mannheim;0.5 mL/L test medium			
Duration, Parameter, System, and Sampling Frequency	28 days; Biochemical oxygen demand/Theoretical oxygen demand (BOD/ThOD): Incubated and aerated in closed bottles; 0, 3, 7, 10, 14, 17, 21 and 28 days			
pH Adjusted and pH	NR; NR			
Concentration	2 - mg/L			
Composition and Test Temperature	Inorganic medium, defined (assumed to be in the guideline); 20 ±2°C			
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; aerated overnight; NR; 2 mg/L test substance = 4.4 mg/L ThOD			
Results Details Method, Results per Degradation Parameter, and	Oxygen concentration determined with an oxygen electrode; O2 consumption (%BOD/ThOD); NR			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	60-70%; Not Reported; 28 days; 89%/14 days			
Results Remarks and Results Details	Not Reported; Mean values = 8%/3 days, 52%/7 days, 57%/10 days, 65%/14 days, 70%/17 days, 65%/21 days and 68%/28 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.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported or verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	High	A concurrent blank control, toxicity control, and positive control were included.
	Metric 4:	Test Substance Stability	Medium	Some test substance stability, homogeneity, preparation and storage condition information was not reported; however, these factors were not likely to have a substantial impact on study results.

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Study Citation:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the closed bottle test (OECD Guideline 301D); Test substance: Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	11182939			
Domain	Metric	EVALUATION		Comments
		Rating		
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; 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.
	Metric 8:	System Type and Design	Medium	The system type and design were not described in detail but 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 for the study method.
	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 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, 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	Medium	The target chemical and transformation products 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	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	BASF Aktiengesellschaft, (2007). [Redacted] Determination of the biodegradability in the closed bottle test (OECD Guideline 301D); Test substance: Diisobutyl phthalate.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11182939

Domain	Metric	EVALUATION Rating	Comments
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		84-69-5; DIBP		
Confidentiality, EndPoint, Type, Guideline		none; inherent biodegradability; experimental; OECD Guideline 302 C (Inherent Biodegradability: Modified MITI Test (II))		
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		not reported; %BOD; not reported		
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments		98; 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		
Domain		Metric	EVALUATION 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. c2007–2014b. Registered substances database. Search for CAS RN 84-69-5 [DIBP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances;jsessionid=ADE5DCC9E32E9AC042ACD435168FEB84.live1?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view1&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	84-69-5; DIBP
Confidentiality, EndPoint, Type, Guideline	none; inherent biodegradability (ready test); experimental; OECD Guideline 301 D (Ready Biodegradability: Closed Bottle 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, non-adapted: 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	66-70; 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			
Domain	Metric	EVALUATION		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. c2007–2014b. Registered substances database. Search for CAS RN 84-69-5 [DIBP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances;jsessionid=ADE5DCC9E32E9AC042ACD435168FEB84.live1?p_auth=UvS8Lp1d&p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=v1&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	84-69-5; DIBP
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	14 or 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	60-70; 70-80; 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			
Domain	Metric	EVALUATION		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. c2007–2014b. Registered substances database. Search for CAS RN 84-69-5 [DIBP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances;jsessionid=ADE5DCC9E32E9AC042ACD435168FEB84.live1?p_auth=UvS8Lp1d&p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=v1&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	84-69-5; DIBP
Confidentiality, EndPoint, Type, Guideline	none; ready biodegradability; 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	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	not reported; %BOD; not reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	98; 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			
Domain	Metric	EVALUATION		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. c2007–2014b. Registered substances database. Search for CAS RN 84-69-5 [DIBP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances;jsessionid=ADE5DCC9E32E9AC042ACD435168FEB84.live1?p_auth=UvS8Lp1d&p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=v1&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	84-69-5; DIBP
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; not specified: not reported
Duration, Parameter, System, and Sampling Frequency	14 or 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	42; 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. c2007–2014b. Registered substances database. Search for CAS RN 84-69-5 [DIBP]. Helsinki (FI): ECHA. [cited 2014 Sept] Available from: http://echa.europa.eu/information-on-chemicals/registered-substances;jsessionid=ADE5DCC9E32E9AC042ACD435168FEB84.live1?p_auth=UvS8Lp1d&p_p_id=registeredsubstances_WAR_regsubsportlet&p_p_lifecycle=1&p_p_state=normal&p_p_mode=view1&p_p_col_pos=1&p_p_col_count=6&_registeredsubstances_WAR_regsubsportlet_javax.portlet.action=registeredSubstancesAction

Study Citation:	Harlan Laboratories, (2010). Di-isobutylphthalate (DIBP): Assessment of ready biodegradability; CO2 evolution test.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	11182940

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Diisobutyl phthalate
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test): Modified per ISO 1995 and Handley et al., 2002 for poorly soluble substances
Solvent, Reactivity, Storage, Stability	NR; NR; room temperature in the dark; NR
Radiolabel, Source, State, Purity	NR; POLYNT; Liquid; ester content 99.91, water content 0.01 Notes: Certificate of analysis provided, in Italian
Blank and Control	inoculated medium with 100 mg silica gel; sample run of test substance with sodium benzoate
Oxygen and Inoculum	aerobic; activated sludge, domestic (adaptation not specified): Mixed population of activated sewage sludge microorganisms, from the aeration stage of the Severn Trent Water Pie sewage treatment, collected on 26 May 2010
Duration, Parameter, System, and Sampling Frequency	28 days; CO2 evolution: CO2 collected from 5L glass culture vessels; 0, 2, 6, 8, 10, 14, 21, 28 and 29 days
pH Adjusted and pH	No; pH = 7 (in all vessels on day 28)
Concentration	10 - mg Carbon/L
Composition and Test Temperature	10 mL of KH2PO4 8.50 g/L, K2HPO4 21.75 g/L, Na2HPO4.2H2O 33.40 g/L, NH4Cl 0.50 g/L, pH 7.4. 1 mL CaCl2 27.50 g/L, 1 mL MgSO4.7H2O 22.50 g/L and 1 mL FeCl3.6H2O 0.25 g/L in purified water for a final volume of 1L.; 21°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; continuous aeration; CO2-free air bubbled through at 40 mL/min; Yes; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	CO2 measured with a Tekmar-Dohrmann Apollo 9000 TOC analyser and a Shimadzu TOC-VcsH TOC analyser; CO2; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	40%; NR; 28 days; 89%/14 days and 87%/28 days
Results Remarks and Results Details	Does not pass ready test; 0%/0 days, 0%/2 days, 21%/6 days, 24%/8 days, 30%/10 days, 42%/14 days, 38%/21 days, 38%/28 days, 40%/29 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.
	Metric 2: Test Substance Purity	Low	The test substance source and purity were not reported or verified by analytical means.
Domain 2: Test Design			
	Metric 3: Study Controls	High	A concurrent blank control, toxicity control, and positive control were included.
	Metric 4: Test Substance Stability	Medium	Some test substance stability, homogeneity, preparation and storage condition information was not reported; however, these factors were not likely to have a substantial impact on study results.

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Study Citation:	Harlan Laboratories, (2010). Di-isobutylphthalate (DIBP): Assessment of ready biodegradability; CO2 evolution test.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	11182940			
		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 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.
	Metric 8:	System Type and Design	Medium	The system type and design were not described in detail but 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 for the study method.
	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 omissions were 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, 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	Medium	The target chemical and transformation products 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	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Harlan Laboratories, (2010). Di-isobutylphthalate (DIBP): Assessment of ready biodegradability; CO2 evolution test.		
OECD Harmonized Template:	Biodegradation in Water		
HERO ID:	11182940		
Domain	Metric	EVALUATION Rating	Comments
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; di-isobutyl 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		GC/FID; HPLC; % degradation; Not Reported		
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments		100%; not reported; 7 days; not reported		
Results Remarks and Results Details		Water samples from 2 sites (Otokiki and Chidori Bridge) gave the same results. Metabolites were detected in both test.; 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 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			
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability Testing Conditions	High	The test method was suitable for the test substance.
	Metric 6:		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:	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		84-74-2; diisobutyl 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: DIBP		
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		13.38 - 15.8 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		GC/MS; linearity range 0.2–100 ug/L; R2 0.993; limit of detection 0.04 ug/L; RSD 7.2%; % removal; Not Reported		
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments		>96.4%; not reported; 7 days; not reported		
Results Remarks and Results Details		conventional WWTP reduction was <96.4%; 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., Kowajsza, 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			
Domain	Metric	EVALUATION		Comments
		Rating		
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., Kowajsza, 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

Domain	Metric	EVALUATION Rating	Comments
Overall Quality Determination		High	

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: die-away 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; not specified: Not reported			
Duration, Parameter, System, and Sampling Frequency	Not reported; not specified: Not reported; Not reported			
pH Adjusted and pH	Not Reported; Not reported			
Concentration	Not reported			
Composition and Test Temperature	seawater; 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	15% after 7 days; 35% after 14 days; 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 clearly.	
	Metric 2: Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
Domain 2: Test Design	Metric 3: Study Controls	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
	Metric 4: Test Substance Stability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 6:	Testing Conditions	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 7:	Testing Consistency	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 8:	System Type and Design	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary 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	High	The intended outcome is reported for the target substance.
	Metric 12:	Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	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 is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination

Medium

* Related References: Hattori Y et al; Pollut Control Cent Ooaki Prefect Mizu Shori Giguts 16: 51-4

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: River die-away 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; Not Reported: Not reported			
Duration, Parameter, System, and Sampling Frequency	Not reported; not specified: Not reported; Not reported			
pH Adjusted and pH	Not Reported; Not reported			
Concentration	Not reported			
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	Not reported; Half-life; Not Reported			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.87 days; Not reported; Not reported; Not reported			
Results Remarks and Results Details	Not reported; first-order rate constant=0.8/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 clearly.	
	Metric 2: Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
Domain 2: Test Design	Metric 3: Study Controls	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
	Metric 4: Test Substance Stability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.	
Domain 3: Test Conditions				
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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
Domain	Metric	EVALUATION		Comments
	Metric 5:	Test Method Suitability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 6:	Testing Conditions	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 7:	Testing Consistency	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 8:	System Type and Design	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary 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	High	The intended outcome is reported for the target substance.
	Metric 12:	Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	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 is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination**Medium**

* Related References: Peterson DR, Staples CA; Handbook of Environ Chem 3: 85-124 (2003)

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I)): Japanese MITI 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 (adaptation not specified): activated sludge			
Duration, Parameter, System, and Sampling Frequency	4 weeks; ThOD: 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	Not reported; BOD; Not Reported			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	98%; 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: Metric 2:	Test Substance Identity Test Substance Purity	High Medium	The test substance was identified clearly. Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 2: Test Design	Metric 3: Metric 4:	Study Controls Test Substance Stability	Medium Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source. Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 3: Test Conditions				
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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
Domain	Metric	EVALUATION Rating	Comments	
	Metric 5:	Test Method Suitability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 6:	Testing Conditions	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 7:	Testing Consistency	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 8:	System Type and Design	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary 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	High	The intended outcome is reported for the target substance.
	Metric 12:	Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	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 is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination

Medium

* Related References: Sedykh A, Klopman G; SAR QSAR Environ Res 18(7-8): 693-709 (2007)

Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	6629592			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not specified			
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	anaerobic; Not Reported: sewage sludge and swamp water			
Duration, Parameter, System, and Sampling Frequency	96 days; not specified: 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	0-30% biodegradation after 96 days; 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 clearly.
	Metric 2:	Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 4:	Test Substance Stability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 3: Test Conditions				
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Study Citation:		NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.		
OECD Harmonized Template:		Biodegradation in Water		
HERO ID:		6629592		
Domain	Metric	EVALUATION		Comments
	Metric 5:	Test Method Suitability	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 6:	Testing Conditions	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 7:	Testing Consistency	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 8:	System Type and Design	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary 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	High	The intended outcome is reported for the target substance.
	Metric 12:	Test Substance Purity	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	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 is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Limited data is presented in this secondary source; however, additional information may be included in the primary source.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination

Medium

* Related References: Madsen T et al; Chemosphere 31: 4243-58 (1995)

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	84-69-5; DiBP
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	Not Reported; first-order rate constant; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.8/day; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	half-life 0.87 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 HERO ID: 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:	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; MgSO4.7H2O; 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): 243 (DMP 1-1); 84 (DEP 4-1); 260 (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			
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 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:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	6629592			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	84-69-5; Diisobutyl phthalate			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biodegradation in sediment			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Oxygen and Inoculum	anaerobic; Not Reported: marine sediment			
Duration, Parameter, System, and Sampling Frequency	56 days; 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 Concentration	Not Reported; Not reported; Not reported			
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; Not reported; Not Reported			
Results Remarks	Not reported			
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	0-30% biodegradation; 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	Details regarding this metric were not reported; however, additional information may be included in the primary source.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 4:	Test Substance Stability	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	6629592			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 6:	Testing Conditions	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 7:	Testing Consistency	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 8:	System Type and Design	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Detail regarding this metric were limited; however, additional information may be included in the primary 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	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 12:	Test Substance Purity	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
	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	Detail regarding this metric were limited; however, additional information may be included in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Detail regarding this metric were not reported; however, additional information may be included in the primary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information, evaluation of the reasonableness of the study results was not possible; however, additional information may be included in the primary source.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	NCBI, (2020). PubChem Compound Summary for CID 6782 Diisobutyl phthalate.
OECD Harmonized	Biodegradation in Sediment
Template:	
HERO ID:	6629592

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

* Related References: Madsen T et al; Chemosphere 31: 4243-58 (1995)

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; % increase from endogenous consumption of oxygen			
Results Remarks	Respiration response in enrichment cultures after 8 hours: not reported, not reported, and 77.70% increase observed in soils amended with DOP, DEHP, and DiBP, respectively.			
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	Not reported; 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			
Domain	Metric	EVALUATION		Comments
	Metric 4:	Test Substance Stability	Rating 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	Uninformative	The outcome assessment methodology addressed or reported the intended outcome of interest; however, results were not reported for all test conditions with this target.
	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**Uninformative**

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	84-69-5; 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	Not Reported; Not Reported; Not Reported			
Comments				
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: 78			
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			
Domain	Metric	EVALUATION 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:	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	84-69-5; di-isobutyl 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: DiBP
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	field study data; 15; data were applied using 6 different scenarios
Comments	
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	S1-0.45; S2-0.45; S3-0.45; S4-0.44; S5-3.57; S6-0.10; TMF ranged from 0.11 to 1.8; Data compared to experimental TMF of 0.81. Concentrations in biota were (ng/g-lipid): S1: 22.1-102; S2: 817-3780; S3: 81.7-378; S4: 22.1-102; S5: 95.9-8350; S6: 28.2-9590.
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 = 0.45

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	84-69-5; Diisobutyl phthalate
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	four fish species including crucian carp, skygager, bluegill, and bass; n=30
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 (mean): 0.01 ug/L (water), 3.0 ug/kg dw (sediment) detection frequency = 25.5% (water) and 19.1% (sediment)
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 detected - 29.4 ug/kg dw
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	Not Reported; BAF = 5 ug/kg (mean fish conc.)/0.01 ug/L (mean water conc.) = 500 L/kg (SRC calculated); BSAF = 3 ug/kg (mean fish conc.)/0.01 ug/L (mean water conc.) = 300 L/kg (SRC calculated). Detection frequency in fish = 43.3%
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
	Metric 2:	Test Substance Purity	High
Domain 2: Test Design	Metric 3:	Study Controls	Medium
Analytical blanks or reference organisms were not explicitly included.			

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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
	Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
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 BAF and BSAF 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; diisobutyl 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 ochraceus; jPer=Cymatogaster aggregata; He=Clupea harengus pallasii; PP=Rhacochilus vacca; SP=Embiotoca lateralis; Sc=Leptocottus armatus; So=Pleuronectes ventulus; WG=Hexagrammos 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=1.67; BA=1.72; PK=2.36; BM=1.51; PO=1.55; GC=1.85; MC=1.77; DC=1.22; St=1.18; jPer=1.46; He=1.41; PP=1.39; SP=2.21; Sc=2.16; So=2.05; WG=1.99; Dg=1.23 (muscle) 0.85 (liver) 1.23 (embryo); SS=1.70
Test Type, Test Temperature, and Test Condition	field study; not applicable; 9 individual samples of each species.
Comments	
Duration, Parameter, and Sampling Frequency	samples collected June-September 1999; food-web magnification factor (FWMF); not 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	0.81; lower-upper 95% interval (0.52-1.24)
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
	Metric 2:	Test Substance Purity	N/A
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
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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

EXTRACTION	
Parameter	Data
CASRN and Test Material	84-69-5; di-iso-butyl phthalate
Confidentiality, Type, and Guideline	None; Experimental; other: BSAF field study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Supelco; NR; Not Reported Notes: DiBP
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	Not applicable; Not applicable; Orge river fish, water and sediment study
Comments	
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; 82% in river water, 51.9% in riverbed sediment and 80.8% in fish tissue
Statistics, Basis, and Calculation Basis	averages and SD reported; total lipid content; other
Results Value and Results Details	Roach: 62.5±26.5, Chub: 41.4±13.3, and Perch: 123.5±75.3; 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., Chevreuril, 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	

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	84-69-5; DiBP			
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 melon, 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 0.13 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	2.23; 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 matrix $p < 0.05$ 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			
Domain		Metric	EVALUATION	
			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:	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	84-69-5; Diisobutyl phthalate
Confidentiality, Type, Guideline	None; Experimental; other: Seasonal organic-carbon normalized partition coefficients of DIBP 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	Not reported; Not reported; Not reported
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; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Log Koc (Mean±SD); Summer: 2.50±0.36; Autumn: 2.56±0.75; Winter: 2.86±0.24.
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
	Metric 2:	Test Substance Purity	High
			The test substance was identified using common nomenclature. 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			
Domain		Metric	EVALUATION	
			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		
Domain		EVALUATION	
Metric		Rating	Comments
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	84-69-5; DiBP
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; 444, 1260, 724 L/kg
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Calculated for wet, normal, and dry seasons Water (wet, normal, dry): 4.48, 3.52, 3.08 ug/L Suspended particulate (wet, normal, dry): 1.99, 4.44, 2.23 mg/kg Sediment (wet, normal, dry): 41.7, 70.3, 36.5 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			
Domain	Metric	EVALUATION		Comments
	Metric 3:	Study Controls	High	Analytical blanks were included, the results were assumed to be within 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

Parameter	Data
CASRN and Test Material	84-69-5; DIBP
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	Not reported; Not Reported; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
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	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	sediment/water partitioning; 10.95 (North River), 12.76 (West River), 13.36 (estuary) L/kg
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Average water concentrations: 2.83 (North River), 3.37 (West River), and 3.07 (estuary) ug/L Average sediment: 0.031 (North River), 0.043 (West River), and 0.041 (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			
Domain	Metric	EVALUATION		Comments
		Rating		
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:	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	84-69-5; 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; 3.92			
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			
Domain		Metric	EVALUATION 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:	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	84-69-5; DIBP
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; 52% average recovery from spiked sediment samples; 62% 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 = 603.3, 19.5, ND, 70.0, ND, ND, ND
Partition Coefficient Type and Partition Coefficient Results	Calculated from [river sediment] / [river water]; Sediment concentrations = 181, 41, 400, 7, 56, ND, and 58 ng/g; water concentrations = 0.3, 2.1, ND, 0.1, ND, 2.8, and ND 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 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			
Domain	Metric	EVALUATION		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:	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	84-69-5; DIBP
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: 100%; sediment: 77 %; average of 4 replicates: water:±1.2%; sediment:±3.4%
Transformation Products, Equilibrium	Not reported; Not applicable; Not applicable
Adsorption Details, and Equilibrium Desorption Details	
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	Not applicable; Not applicable; Not applicable; Calculated for 22 stations = ND, 60, ND, ND, ND, ND, ND, ND, ND, ND, ND, 52.5, ND, ND, ND, ND, ND, ND, ND, ND
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Calculated from [river or lake sediment] / [river or lake water]; Sediment: 8.0, 12.0, 14.0, ND, ND, 13.2, ND, ND, ND, 3.5, ND, 10.5, ND, ND, ND, 14.0, ND, ND, ND, 76.0, 33.0, and 13.0 ug/kg; Water: ND, 0.2, ND, ND, ND, ND, ND, ND, ND, ND, 0.2, 0.2, 5.7, ND, ND, ND, ND, ND, ND, 0.3, 0.2, and 0.6 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
	Metric 2:	Test Substance Purity	High
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:	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; diisobutyl phthalate
Confidentiality, Type, Guideline	None; calculation; calculation
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	0.10 mg/kg in surface soil (mean) and 0.04 mg/kg in deep soil; volatility calculated but not reported
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			
Domain	Metric	EVALUATION		Comments
		Rating		
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	84-69-5; DIBP
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: DIBP
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 (<i>Lutjanus campechanus</i>) (n = 26), orange spotted grouper (<i>Epinephelus coioides</i>) (n = 26), and snubnose pompano (<i>Trachinotus blochii</i>) (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: <0.5 (MS), 0.5 (NS), 0.23 (snubnose pompano), 0.50 (orange-spotted grouper), 0.01 (red snapper); Site M2: 1 (MS), 0.5 (NS), 0.38 (snubnose pompano), 0.29 (orange-spotted grouper), 0.26 (red snapper); Site H1: <0.5 (MS), <0.5 (NS), 0.37 (orange-spotted grouper), 0.01 (red snapper); Site H2: <0.5 (MS), 0.5 (NS), 0.21 (orange-spotted grouper); Site H3: <0.5 (MS), <0.5 (NS), 0.12 orange-spotted grouper), 0.04 (red snapper); Site H4: <0.5 (MS), <1 (NS), 0.47 (snubnose pompano), 0.37 (orange-spotted grouper), 0.46 (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	Medium	The chemical of interest was identified by common acronym used for this phthalate ester; however the acronym was not defined in the paper.
	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.

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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			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	No environmental conditions were reported.
	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:	Liu, H.,ui, Liang, Y., Zhang, D.,an, Wang, C., Liang, H., Cai, H. (2010). Impact of MSW landfill on the environmental contamination of phthalate esters. Waste Management 30(8-9):1569-1576.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1336447

EXTRACTION	
Parameter	Data
CASRN and Test Material	84-69-5; diisobutyl phthalate
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	n-hexane (for the standards); Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	NA; Dr. Ehrenstorfer GmbH (Germany); Not Reported; Not Reported Notes: Test substance extracted from leachate, surface water, groundwater, topsoil, overbarden samples
Test Method Details, Test Condition Details, and Test Consistency Details	Groundwater, surface water, leachate, and soil samples collected from the Landfill area in Wuhan city, China, were extracted and pretreated according to EPA Method 3535 and 8061a for liquid samples, or spiked with internal standards, extracted and concentrated for the soil samples.; raw (fresh) leachate pH = 7.4–7.82, COD = 7,138–24,856 mg/L, and BOD5 = 1,000–5,000 mg/L; Not Reported
System Type Design	Landfill established in 2003; 23.4 hm2 covered with wastes
Sampling Frequency and Sampling Details	Leachate (n = 5) Surface water (n = 4) Groundwater (n = 8) Topsoil (n = 4) Overbarden (n = 2) Collected in December 2007; Not Reported
Test Temperature	ambient
Results Details	DiBP was detected in Leachate (n = 5) 11.67 (mean), 7.27–15.43 ug/L (range), detection frequency = 100%; Surface water (n = 4) 0.40 (mean), 0.18–0.50 ug/L (range), detection frequency = 75%; Groundwater (n = 8) 3.41 (mean), nd–7.58 ug/L (range), detection frequency = 88%; Topsoil (n = 4) 232.7 (mean), nd–258.0 ug/kg (range), detection frequency = 75%, and Overbarden (n = 4) 252.8 (mean), 172.7–332.8 ug/kg (range), detection frequency = 100%. LOD range 22 to 341 ng/L.
Analytical Method and Analytical Details	Agilent 6890N gas chromatography with FID detector; DB-5MS capillary column (30 m × 250 mm × 0.25 mm) (Agilent, USA) for chromatographic separation
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	For all the samples, a procedural blank and spiked sample consisting of all reagents was run to check for interference and cross contamination.; 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.

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Study Citation:	Liu, H.,ui, Liang, Y., Zhang, D.,an, Wang, C., Liang, H., Cai, H. (2010). Impact of MSW landfill on the environmental contamination of phthalate esters. Waste Management 30(8-9):1569-1576.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1336447			
		EVALUATION		
Domain	Metric	Rating	Comments	
	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.
	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 (multi-media concentrations were reported for test substance; partitioning and fate processes were not assessed).
	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	Low	Statistical methods were clearly described and address the dataset(s); kinetic calculations were not performed.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results were reasonable; however, partitioning and fate processes were not quantified.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Quality Determination		High		

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	84-69-5; DIBP			
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.; present in concentration ranges of 1-10 ug/L in the influent of both plants.; NR			
System Type Design	NR			
Sampling Frequency and Sampling Details	NR; NR			
Test Temperature	NR			
Results Details	DIBP was removed by 98% in the effluents 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.
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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 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	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, Universität Gesamthochschule Duisenberg. English Translation prepared for European Council for Plasticizers 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:	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	84-69-5; Di-iso-butyl 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 Details	DiBP concentrations in WWTP inputs = 9.6 ± 6.7 ug/L, output = 0.31 ± 0.26 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.; 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	Not reported; 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	96.7% 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:	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	84-69-5; Diisobutyl 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: DIBP
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 μ m 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 = 30%
Analytical Method and Analytical Details	SPE and GC-MS; LOD = 0.13-0.2 μ g/L for phthalates
Transformation Products, Statistics, and Kinetics	Not reported; Average concentration (7 samples): Influent = 777 ng/L , coagulation 673 ng/L, CMF = 610 ng/L, ozonation 539 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. Plant receives mainly domestic secondary wastewater, treated by activated sludge, from the Jizhuangzi Sewage Treatment Plant.

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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			
Domain	Metric	EVALUATION		Comments
		Rating		
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	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, 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

Parameter		EXTRACTION		
CASRN and Test Material	84-69-5; Di-iso-butyl 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: DIBP			
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. -75%; CEPT: ca. 25%; AS: ca. 25%; SF: ca. 25%; Cl2: ca. 20; UV: ca. -5%; RO: ca. 25%			
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			
Domain	Metric	EVALUATION		Comments
		Rating		
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., 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-isobutyl 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: DiBP			
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: 311–1711 ng/g; mean 635 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 DnBP-D4 78±18% (soil), 97±17% (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; 7.4% of PAE in vegetation was DiBP			
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 blanks 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			
Domain		Metric	EVALUATION 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:	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; diisobutyl 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: DiBP			
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: 95.5-767 ng/L (from table) 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; 30.8% and 24.7% of total PAE in seawater and sediment, respectively; risk quotient values for DiBP in water were 0.01-1 indicating medium risk to organisms; risk quotient values for DiBP in sediment were >1, indicating that DiBP is a high risk to algae, crustaceans, and fish.			
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 study did not require concurrent control groups.
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.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
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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			
Domain	Metric	EVALUATION		Comments
		Rating		
	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 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:	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	84-69-5; DiBP
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): 11.67 µg/Lsurface water (average): 0.40 µg/Lgroundwater (average): 3.41 µg/Ltopsoil (average): 232.7 µg/kgoverburden (average): 252.8 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): 7.27 - 15.43 ug/Lsurface water (range, n=4): 0.18 - 0.50 ug/Lgroundwater (range, n=8): n.d. - 7.58 ug/Ltopsoil (range, n=4): n.d. - 258.0 ug/kgoverburden (range, n=2): 172.7 - 332.8 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:	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; diisobutyl 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: 530.6-1395.9 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			
Domain		Metric	EVALUATION 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	

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	Quantitative 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