

Data Quality Evaluation and Data Extraction Information for Environmental Fate and Transport for Diisononyl Phthalate (DINP)

Systematic Review Support Document for the Risk Evaluation

CASRNs: 28553-12-0 and 68515-48-0



This supplemental file contains information regarding the data extraction and evaluation results for data sources that were considered for the *Risk Evaluation for Diisononyl Phthalate (DINP)* 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 *Risk Evaluation for Diisononyl Phthalate (DINP) – Systematic Review Protocol*. EPA conducted data extractions and data quality evaluations based on author-reported descriptions and results; additional analyses (*e.g.*, statistical analyses) potentially conducted by EPA are not contained in this supplemental file. Additionally, the overall quality determination (OQD) for each reference represents the data as a whole for each study, and not for individual metric domains within a study.

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HERO ID	Reference	Page
Photolysis in Air		
5348354	Mackay, D., Shiu, W. Y., Ma, K. C. (2006). Diisononyl phthalate (DINP). :3127-3128.	6
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.	8
Hydrolysis		
680048	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.	10
Photolysis in Water		
680048	Lertsirisopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. Journal of Environmental Sciences 21(3):285-290.	12
Photolysis in Soil		
Biodegradation in Water		
3688004	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.	14
679933	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).	24
2079252	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.	30
2356022	HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0).	32
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.	42
5348354	Mackay, D., Shiu, W. Y., Ma, K. C. (2006). Diisononyl phthalate (DINP). :3127-3128.	45
10616941	Monsanto, (1978). Environmental Sciences Report: Biodegradabilty of plasticizers.	47
1325488	Monsanto, (1983). Ultimate biodegradation screening of selected phthalate esters.	49
679791	O'Grady, D. P., Howard, P. H., Werner, A. F. (1985). Activated sludge biodegradation of 12 commercial phthalate esters. Applied and Environmental Microbiology 49(2):443-445.	51
680132	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.	53
1316198	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.	56
1316206	SRC, (1984). Activated sludge biodegradation of 12 commercial phthalate esters contract No. PE-17.0-ET-SRC.	60
7325467	U.S. EPA, (2019). Manufacturer request for risk evaluation: Diisononyl phthalate (DINP).	62

Biodegradation in Sediment

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1315944	Ejlertsson, J., Johansson, E., Karlsson, A., Meyerson, U., Svensson, B. H. (1996). Anaerobic degradation of xenobiotics by organisms form municipal solid waste under landfilling conditions. Antonie van Leeuwenhoek 69(1):67-74.			
2079252	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.			
2356022	HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0).	70		
1325551	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.	72		
679999	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.	76		
1339546	Kickham, P., Otton, S. V., Moore, M. M., Ikonomou, M. G., Gobas, F. A. P., C (2012). Relationship between biodegradation and sorption of phthalate esters and their metabolites in natural sediments. Environmental Toxicology and Chemistry 31(8):1730-1737.	80		
675274	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.	82		
Biodegredation in Soil				
679933	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).	88		
2079252	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.	90		
Aquatic Bioconcentration				
7325943	Chemical Manufacturers Association, (1984). Phthalate esters panel: Summary report: Environmental studies - Phase I. Generation of environmental fate and effects data base on 14 phthalate esters.	92		
3688004	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.	94		
5353181	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping.	98		
679933	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).	102		
2079252	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.	108		
789501	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.	112		
680146	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environmental Research 16(2):103-114.	115		
Terrestrial Bioconcentration				
3688004	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.	125		
679933	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).	127		
Adsorption and Desorption				

2356022	HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0).	129
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. Marine Pollution Bulletin 122(1-2):38-46.	131
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. Science of the Total Environment 580(Elsevier):388-397.	133
807140	Lu, C. (2009). Prediction of environmental properties in water-soil-air systems for phthalates. Bulletin of Environmental Contamination and Toxicology 83(2):168-173.	135
Miscellaneous		
4829336	Armstrong, D. L., Rice, C. P., Ramirez, M., Torrents, A. (2018). Fate of four phthalate plasticizers under various wastewater treatment processes. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 53(12):1075-1082.	137
7328572	Schrank, I., Trotter, B., Dummert, J., Scholz-Böttcher, B. M., Löder, M. G. J., Laforsch, C. (2019). Effects of microplastic particles and leaching additive on the life history and morphology of Daphnia magna. Environmental Pollution 255(Pt 2):113233.	139
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. Chemosphere 119C:43-51.	141
789658	Vikelsøe, J., Thomsen, M., Carlsen, L. (2002). Phthalates and nonylphenols in profiles of differently dressed soils. Science of the Total Environment 296(1-3):105-116.	143
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. Environmental Pollution 240:235-247.	145
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List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

Study Citation:	Mackay, D., Shiu,	W. Y., Ma, K. C. (2006). Diisononyl p	hthalate (DINP). :312	27-3128.
OECD Harmonized	Photolysis in Air			
HERO ID:	5348354			
			EXTRACTION	
Parameter		Data		
CASRN and Test Material		28553-15-0, 68515-48-0; DINP		
Confidentiality, Type, Guide	eline	no; not specified; None		
Solvent, Reactivity, Storage	, Stability	NR; NR; NR; NR		
Radiolabel, Source, State, F	Purity	NR; NR; NR; NR Notes: NR		
Duration and Test Temperat	ture	NR; NR		
Light Source, Intensity, and	d additional light de-	NR; NR; NR		
Source Wavelength Lower a	and Upper	NR; NR		
Test Details and Control	**	NR; NR		
Initial Concentration, Refer Compound	ence	NR NR; NR		
Substance Wavelength Low	er and Upper	NR; NR		
Direct Quantum Yield Res	ults, Direct Half Life	NR; 0.2 days; 2.0 days		
by Loss Lower and Upper				
Indirect Type Results, Indir	ect Rate	atmospheric photooxidation; NR; NR		
Constant Lower and Upper	Duaduata	ND. ND		
Details Results	FIGURES	INK, INK		
Parameter Value and Param	eter Results	NR; NR		
Reference Substance Resul	ts, Percent Degrada-	NR; NR; NR		
tion Results and Standard				
Deviation Results Results Remarks Sample 1	time Results Results	NR · NR · NR		
Details	time Results, Results			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substand	ce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name, CASRN and structure.
	16.1.0		36.11	

	Metric 2:	Test Substance Purity	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 2: Tast Dasi	an			
Domain 2: Test Desi	gn			
	Metric 3:	Study Controls	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 3: Test Con	ditions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this source; additional details may be available in the source cited.
Continued on next page				

		contin	ued from previous	page
Study Citation: OECD Harmonized	Mackay, D., Shiu Photolysis in Air	, W. Y., Ma, K. C. (2006). Diisononyl phth	nalate (DINP). :312	7-3128.
HERO ID.	53/835/			
IIEKO ID.	5546554			
Damain		I Matria	EVALUATION	Community
Domain	Mail	Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric /:	Testing Consistency	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 4: Test Organis	sms			
8	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.
		1 0		
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric does not apply to this study type.
		Exposure		
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 16:	Statistical Methods and	N/A	This metric does not apply to this study type.
		Kinetic Calculations		
Domain 8: Other	M · 1 17		T	
	Metric 17:	verification or Plausibility of	Low	Due to limited information, evaluation of the reasonableness of the study results was not
	Matria 19.	Results OSAB Modele	NI/A	possible This matrix data and the table to the table
	Metric 18:	QSAK Models	IN/A	i his metric does not apply to this study type.
Overall Ovel	ty Dotomin	ation	Modium	
	iy Determin	auon	wieuiuiii	

* Related References: Citing Staples et al., 1997 HERO ID 675437.

Study Citation:	Peterson, D. R., St	aples, C. A. (2003). Degradation of phthalate esters in the environment. The Handbook of Environmental Chemistry book series HEC				
OFCD Harmonized	3Q:85-124.	2/85-124.				
Tompleter	Photolysis in Air					
Template:	5249222					
HERO ID:	5348332					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0; DINP				
Confidentiality, Type, Guid	leline	no; calculation; None				
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR				
Radiolabel, Source, State, I	Purity	NR; NR; NR				
Duration and Test Tempera	ture	NR; NR				
Light Source, Intensity, an	d additional light de-	NR; Not Reported; Not Reported				
tails	-					
Source Wavelength Lower	and Upper	Not Reported; Not Reported				
Test Details and Control		Not Reported; NR				
Initial Concentration, Refer	rence	NR Not Reported; NR				
Substance Wavelength Low	ver and Upper	Not Reported; Not Reported				
Direct Quantum Yield Res	ults, Direct Half Life	e Not Reported; Not Reported				
by Loss Lower and Upper						
Indirect Type Results, Indir	pe Results, Indirect Rate reaction with OH radicals; 23.408X10-12 cm3/molecule/s; Not Reported					
Constant Lower and Upper						
Method Details Results and	d Products	NR; NR				
Details Results Parameter Value and Param	neter Results	8.5 hours (0.35 days): half-life				
Reference Substance Resu	lts Percent Degrada-	NIP. NIP.				
tion Results and Standard	nts, i ereent Degrada-					
Deviation Results						
Results Remarks, Sample	time Results, Results	Not Reported; Not Reported; Not Reported				
Details						

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substar	ice				
	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

		continu	ed from previous	page
Study Citation:	Peterson, D. R., S 30:85-124	taples, C. A. (2003). Degradation of phtha	alate esters in the e	nvironment. The Handbook of Environmental Chemistry book series HEC
OECD Harmonized	Photolysis in Air			
Template:	-			
HERO ID:	5348332			
		E	VALUATION	
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 Organis	ms			
	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 As	sessment			
	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	g/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 Present	ation and Analysis			
	Metric 15:	Data Reporting	Low	There was insufficient information reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and	Low	Statistical analysis or kinetic calculations were not described clearly and the lack of
		Kinetic Calculations		information was likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Qualit	ty Determina	ation	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:	Lertsirisopon, R.,	Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation.			
OFCD Harmonized	Journal of Environmental Sciences 21(3):285-290. Hydrolysis				
Template:	Trydrorysis				
HERO ID:	680048				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0: Not Reported			
Confidentiality, Type, Guid	leline	No; Experimental, pH dependent, half-life reported, reaction rate reported; None			
Solvent, Reactivity, Storag	e, Stability	Artificial river water; NR; NR; NR			
Radiolabel, Source, State,	Purity	NA; Wako, Osaka, Japan; Liquid; Analytical grade			
Buffer, Test Temperature, I	Number of Replicates	HCl or NaOH; 0.4 - 27.4 deg C; Average = 10.8 deg C; 1			
Positive Controls and Nega	ative Controls	Positive: NR; Negative: NR			
pH and Duration		5.0, 6.0, 7.0, 8.0, 9.0; 140 days			
Sampling Frequency and Test Setup		Approx. every 10 days; 30 mL solution at pH 5.0, 6.0, 7.0, 8.0, or 9.0, placed in 50 mL pyrex glass test tube and sealed with rubber stopper, and wrapped with aluminum foil. Tubes kept on the roof of a building at Osaka University, Japan (34 N, 135 E) from September 2004 to March 2005.			
Concentration		1 lests conducted in the dark. 0 32 mmol/L			
Analytical Method, Analytical Details, and Statistics		Details, and HPLC UV-Vis at 254 nm; Aliquot of the sample was extracted with acetonitrile and centrifuged, retaining the supernatant for analysis. Errors for PAE's <5% · NR			
Transformation Products		NR			
Reference Substance and Reference		NR; Not Reported			
Substance Results Percent Recovery, Hydrolysis Rate Constant, and Half-life Results Remarks		NR; 9.6E-4 /d (pH 5), 5.9E-4 /d (pH 6), negligible /d (pH 7), 6.9E-4 /d (pH 8), 1.5E-4 /d (pH 9); 720 d (pH 5), 1200 d (pH 6), negligible (pH 7), 1000 d (pH 8), 460 d (pH 9) Not Reported			

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

		contin	ued from pre-	vious page
Study Citation:	Lertsirisopon, R. Journal of Enviro	, Soda, S., Sei, K., Ike, M. (2009). Abiot nmental Sciences 21(3):285-290.	ic degradation	of four phthalic acid esters in aqueous phase under natural sunlight irradiation.
OECD Harmonized	Hydrolysis			
Template:				
HERO ID:	680048			
		1	EVALUATIO	N
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions (temperature, pH) were reported. Due to the nature of the study, there was a wide range of temperatures used; this however may provide results which are closer to environmental behavior.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organis	sms			
_	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining hydrolytic loss.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported generally, frequency was reported graphically and was acceptable for rate determination.
Domain 6: Confounding	g/Variable Control			
·	Metric 13:	Confounding Variables	Low	Variability was not addressed as only one replicate per test condition was used.
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable.
		Exposure		
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and extraction recovery were not reported. Raw data was reported graphically.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain & Other				
Domain o. Other	Metric 17.	Verification or Plausibility of	Low	The results were reasonable based on the method but the test substance was tested above
	Metric 17.	Results	LOw	its water solubility and the temperature fluctuation may have caused the half-life to be lower than other previously determined values.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quali	ty Determin	ation	Low	

Study Citation:	Lertsirisopon, R., Journal of Environ	risopon, R., Soda, S., Sei, K., Ike, M. (2009). Abiotic degradation of four phthalic acid esters in aqueous phase under natural sunlight irradiation. al of Environmental Sciences 21(3):285-290.				
OECD Harmonized	Photolysis in Wate	YI (Internet in the second s				
Template: HERO ID:	680048					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; Not Reported				
Confidentiality, Type, Guid	leline	No; Experimental, pH dependent, half-life reported, reaction rate reported; Not Reported				
Solvent, Reactivity, Storag	e, Stability	Artificial river water; NR; NR; NR				
Radiolabel, Source, State,	Purity	NA; Kishida Chemical, Osaka, Japan; Liquid; Analytical grade				
Duration and Test Tempera	ature	140 days; 0.4 - 27.4 deg C; average = 10.8 deg C				
Light Source, Intensity, and additional light de-		Natural sunlight; 17.1-242.8 W/m ² (reflecting moderate autumn and winter Japan temperate zone); Not Reported				
Source Wavelength Lower and Upper		NR; Not Reported				
Test Details and Control		30 mL solution at pH 5.0, 6.0, 7.0, 8.0, or 9.0, placed in 50 mL pyrex glass test tube and sealed with rubber stopper. Tubes kept on the roof of a building at Osaka University, Japan (34 N, 135 E) from September 2004 to March 2005.; Test tube prepared the same but wrapped in aluminum				
Initial Concentration and R	Reference Compound	foil. 0.32 mmol/L; NR				
Substance Wavelength Lov	ver and Upper	NR; NR				
Direct Quantum Yield Res by Loss Lower and Upper	sults, Direct Half Life	NR; Not Reported; 32 d (pH 5), 52 d (pH 6), 140 d (pH 7), 61 d (pH 8), 36 d (pH 9)				
Indirect Rate Constant Lov	ver and Upper	Not Reported; Not Reported				
Method Details Results and	d Products	HPLC UV-Vis at 254 nm; NR				
Details Results Parameter Value and Parameter Results		Not Reported; Test substance disappearance				
Reference Compound, Reference		NR; NR; NR				
Substance Results, Percen	t Degradation Results					
and Standard Deviation Re Results Remarks, Sample Details	esults time Results, Results	NA; NA; Rate constant: 2.1E-2 /d (pH 5), 1.3E-2 /d (pH 6), 4.9E-3 /d (pH 7), 1.1E-2 /d (pH 8), 1.9E-2 /d (pH 9)Dark control half-life: 720 d (pH 5), 1200 d (pH 6), Negligible d (pH 7), 1000 d (pH 8), 460 d (pH 9)				

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

		continu	ed from pre	vious page					
Study Citation:	Lertsirisopon, R., Journal of Enviror	Soda, S., Sei, K., Ike, M. (2009). Abioti nmental Sciences 21(3):285-290.	c degradation	of four phthalic acid esters in aqueous phase under natural sunlight irradiation.					
OECD Harmonized	Photolysis in Wate	Photolysis in Water							
Template: HERO ID:	680048								
	000010	Г	WALLIATIO						
Domain		r Metric	Rating	Comments					
			8						
Domain 3: Test Conditi	ons								
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its water solubility, but was treated with an ultrason- icator to ensure homogenization.					
	Metric 6:	Testing Conditions	High	Appropriate test conditions (pH, light intensity, temperature) were reported. Tempera- ture and light intensity fluctuations were wide but because the study took place outdoors, this possible effect to rates may better reflect environmental behavior.					
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across study groups and replicates.					
	Metric 8:	System Type and Design	N/A	Not applicable.					
Domain 4. Test Organis	sms								
Domain 1. Test organis	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.					
	Metric 10:	Sampling Methods	N/A	Not applicable.					
Demain 5. Outerman									
Domain 5: Outcome As	Metric 11	Test Substance Identity	High	The outcome assessment was appropriate for determining photolytic loss					
	Metric 12:	Test Substance Purity	High	Sampling frequency was reported graphically (approximately every 10 days) and was appropriate for rate determination.					
Domain 6: Confounding	v/Variable Control								
Domain of Contouriant	Metric 13:	Confounding Variables	Low	Variability was not addressed as only one replicate per test condition was used.					
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.					
Domain 7: Data Present	tation and Analysis								
Domain 7. Data Present	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limit of detection and extraction efficiency were not reported. Raw data was reported graphically only.					
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations (first order) were described and applied appropriately.					
Domain 8: Other									
Domain 6. Outer	Metric 17:	Verification or Plausibility of	Low	The results were reasonable based on the method but the results were not compared to previously determined values and the test substance was tested above its water solubility					
	Metric 18:	QSAR Models	N/A	Not applicable.					
Overall Quality Determination			High						

Study Citation: OECD Harmonized Template:	EC/HC, (2015). St di-C8-10-branched Biodegradation in Y	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0. Biodegradation in Water			
HERO ID:	3688004				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate			
Confidentiality, EndPoint, T	Гуре,	no; ultimate degradation; experimental; other: not reported			
Guideline Solvent, Reactivity, Storage	. Stability	NR: NR: NR			
Radiolabel, Source, State, P	Purity	NR: NR: NR Notes: DINP			
Blank and Control		not reported; not reported			
Oxygen and Inoculum		aerobic; other:: non-acclimated			
Duration, Parameter, System, and Sampling Frequency		not reported; not reported; not reported; not reported			
pH Adjusted and pH		not reported; not reported			
Concentration		Not Reported			
Composition and Test Temp	perature	water; not reported			
CEC, Water Aeration Dilution	on, Continuous Dark-	not reported; not reported; not reported; Not Reported			
ness, and Other Design Results Details Method, Results per Degradation Parameter, and		not reported; BOD; Not Reported			
Direct Quantum Yield Results Results Value, Results Standard Deviation, Re- sults Sample Time, and Results Reference Sub- stance Compartments		74%; not reported; 28 days; not reported			
Results Remarks and Resul	ts Details	Not Reported; not reported			
Results Mean Total Recover covery	ry and Results per Re-	not reported; not reported			

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Condition	ons			

		continu	ed from previous	page			
Study Citation:	EC/HC, (2015). di-C8-10-branche	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0					
OECD Harmonized	Biodegradation in	Biodegradation in Water					
Template:	3688004						
	5088004						
Demein		E Matria	EVALUATION	Commente			
Domain	Matria 5:	Metric Test Method Suitability	Madium	Comments			
	Metric 5.	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 7:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type			
	Wiettie 6.	System Type and Design	11//A	Not applicable to this study type.			
Domain 4: Test Organis	ms						
8	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome As	sessment Metric 11: Metric 12:	Test Substance Identity Test Substance Purity	Medium Medium	Details regarding this metric were not reported in the secondary source. Details regarding this metric were not reported in the secondary source.			
Domain & Confounding	Wariahla Cantral						
Domain 0. Comountaing	Metric 13.	Confounding Variables	Medium	Dataile regarding this matric wars not reported in the secondary source			
	Metric 14.	Health Outcomes Unrelated to	N/A	Not applicable to this study type			
	Medic III.	Exposure	10/11				
Domain 7. Data Present	ation and Analysia						
Domain 7: Data Present	Metric 15:	Data Reporting	Medium	Dataile regarding this matric wars not reported in the secondary source			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
	Metrie 10.	Kinetic Calculations	Wiedium	Details regarding this neuric were not reported in the secondary source.			
Domain 8: Other	Matria 17:	Varification or Dlausibility of	Uich	The maples are managementic based on the date's inclusion in a many mariness due to a size d			
	Metric 17:	Populta	nigh	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
Overall Qualit	ty Determin	ation	Medium				
<u> </u>	•						

* Related References: cites: [CHRIP] Chemical Risk Information Platform [database on the Internet]. 2014. Tokyo (JP): National Institute of Technology and Evaluation, Chemical Management Centre (CMC)[cited 2014 May 30]. Available from: www.safe.nite.go.jp/english/db.html

Study Citation: H	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0				
OECD Harmonized	Biodegradation in Water				
Template:					
HERO ID:	3688004				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate			
Confidentiality, EndPoint, Typ	pe,	no; ultimate degradation; experimental; other: not reported			
Solvent, Reactivity, Storage, S	Stability	NR; NR; NR			
Radiolabel, Source, State, Puri	rity	NR; NR; NR Notes: DINP			
Blank and Control		not reported; not reported			
Oxygen and Inoculum		aerobic; other:: non-acclimated			
Duration, Parameter, System, a	and	not reported; not reported; not reported; not reported			
Sampling Frequency					
Concentration		Not Reported			
Composition and Test Temper	rotura	water: not reported			
CEC Water Aeration Dilution	Continuous Dark-	not reported: not reported: not reported: Not Reported			
ness, and Other Design	i, Continuous Dark	not reported, not reported, not reported			
Results Details Method, Resul	lts per Degradation	not reported; O2 consumption; Not Reported			
Parameter, and					
Direct Quantum Yield Results	s and Doviation Ro	Maan 67.5%, range 50.5.7 $/$ 1%, 28 days, not reported			
sults Sample Time and Results Reference Sub-		Mean. 07.5%, Tange. 59.5-74.1%, 28 days, not reported			
stance Compartments					
Results Remarks and Results Details Not R		Not Reported; not reported			
Results Mean Total Recovery and Results per Re- covery		not reported; not reported			
		EVALUATION			

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substa	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design	1			
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Condit	tions			
	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.
		C	ontinued on next page	

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		continu	ued from previous	page			
Study Citation:	EC/HC, (2015). S di-C8-10-branche	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.					
OECD Harmonized	Biodegradation in	1 Water	, , , , , , , , , , , , , , , , , , , ,				
Template:	c						
HERO ID:	3688004						
		Ι	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.			
Domain 4: Test Organi	sms						
2 oniani il 1000 olgani	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome A	acasemant						
Domain 5. Outcome A	Matric 11.	Test Substance Identity	Medium	Details recording this matrix were not reported in the secondary source			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12.	Test Substance Funty	Wedium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type.			
		Exposure					
Domain 7: Data Presen	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Results	2	secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
	4 D-4	- 4 •	N/1*				
Overall Quali	ity Determin	ation	wiedium				

* Related References: cites: Exxon Biomedical Sciences, Inc. 2004. Ready biodegradability: OECD 301F manometric respirometry test. Project number: 135794A. Final report. Submitted to Environment Canada under the Chemicals Management Plan initiative. Gatineau (QC): Environment Canada, Program Development and Engagement Division.

Study Citation: EC	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.					
OECD Harmonized Bio	Biodegradation in Water					
Template:	00004					
HEROID: 363	88004					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate				
Confidentiality, EndPoint, Type,		no: ultimate degradation: experimental: other: not reported				
Guideline		,				
Solvent, Reactivity, Storage, Stal	bility	NR; NR; NR				
Radiolabel, Source, State, Purity	1	NR; NR; NR Notes: DINP				
Blank and Control		not reported; not reported				
Oxygen and Inoculum		aerobic; other:: non-acclimated				
Duration, Parameter, System, and	ıd	not reported; not reported; not reported; not reported				
sampling Frequency		not reported: not reported				
Concentration		Not Reported				
Composition and Test Temperatu	ure	water: not reported				
CEC. Water Aeration Dilution. C	Continuous Dark-	not reported: not reported: not reported: Not Reported				
ness, and Other Design						
Results Details Method, Results	per Degradation	not reported; CO2 evolution; Not Reported				
Parameter, and						
Direct Quantum Yield Results	Doviation Do	56.6%, not reported 20 days, not reported				
Results Value, Results Standard Deviation, Re-		50.0%; not reported, 29 days; not reported				
stance Compartments	Reference Sub					
Results Remarks and Results De	sults Remarks and Results Details Not Reported; not reported					
Results Mean Total Recovery and covery	d Results per Re-	not reported; not reported				
		EVALUATION				
Demein		Matria Datian				

Domain		Metric	Rating	Comments	
Domain 1: Test Substar	nce				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.	
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 3: Test Conditi	ons				
	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.	
Continued on next page					

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		continu	ued from previous	page			
Study Citation:	EC/HC, (2015). S di-C8-10-branche	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.					
OECD Harmonized	Biodegradation in	1 Water	, , , , , , , , , , , , , , , , , , , ,				
Template:	c						
HERO ID:	3688004						
		Ι	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.			
Domain 4: Test Organi	sms						
2 oniani il 1000 organi	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome A	acasemant						
Domain 5. Outcome A	Matric 11.	Test Substance Identity	Medium	Details recording this matrix were not reported in the secondary source			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12.	Test Substance Funty	Wedium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type.			
		Exposure					
Domain 7: Data Presen	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Results	2	secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
	4 D-4	- 4 •	N/1*				
Overall Quali	ity Determin	ation	wiedium				

* Related References: cites: Exxon Intermediates Technology. 1996. Synthetic ester biodegradability: Test #95-5A. Interoffice correspondence dated March 21, 1996. Submitted to Environment Canada under the Chemicals Management Plan initiative. Gatineau (QC): Environment Canada, Program Development and Engagement Division.

Study Citation: E	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di C8, 10 branched alkyl esters, C0 rich (Diisononyl Phthalate; DINP). Chemical Abstracts Samira Pagietry Numbers; 28553, 12,0 and 68515, 48,0				
OECD Harmonized B	Biodegradation in Water				
Template:	C				
HERO ID: 30	688004				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate			
Confidentiality, EndPoint, Type	2,	no; primary degradation; experimental; other: not reported			
Guideline Solvent Reactivity Storage St	ability	NR · NR · NR			
Radiolabel, Source, State, Purit	tv	NR: NR: NR Notes: DINP			
Blank and Control	-5	not reported not reported			
Oxygen and Inoculum		aerobic; other:: non-acclimated			
Duration, Parameter, System, and		7 days; not reported: not reported; not reported			
pH Adjusted and pH		not reported: not reported			
Concentration		Not Reported			
Composition and Test Temperat	iture	not reported; not reported			
CEC, Water Aeration Dilution, (Continuous Dark-	not reported; not reported; not reported; Not Reported			
Results Details Method, Results Parameter, and	s per Degradation	not reported; Not Reported; Not Reported			
Direct Quantum Yield Results Results Value, Results Standard Deviation, Re- sults Sample Time, and Results Reference Sub- stance Compartments		91-100%; not reported; 7 days; not reported			
Results Remarks and Results D	Ilts Remarks and Results Details Not Reported; not reported				
Results Mean Total Recovery and Results per Re- covery		not reported; not reported			
		EVALUATION			

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substar	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditi	ions			
	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.
		(Continued on next page	

		continu	ued from previous	page			
Study Citation:	EC/HC, (2015). S di-C8-10-branche	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers; 28553-12-0 and 68515-48-0.					
OECD Harmonized	Biodegradation in	Biodegradation in Water					
Template:	c						
HERO ID:	3688004						
		Ι	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.			
Domain 4: Test Organi	sms						
2 oniani il 1000 olgani	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome A	acasemant						
Domain 5. Outcome A	Matric 11.	Test Substance Identity	Medium	Details recording this matrix were not reported in the secondary source			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12.	Test Substance Funty	Wedium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type.			
		Exposure					
Domain 7: Data Presen	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Results	2	secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
	4 D-4	- 4 •	N/1*				
Overall Quali	ity Determin	ation	wiedium				

* Related References: cites HEROID: 10328943; Furtmann K. 1993. Phthalates in the aquatic environment. PhD dissertation, Regional Water and Wastewater Authority, Nordrhein-Westfalen [cited in ECJRC 2003].

Study Citation: EC.	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.					
OECD Harmonized Bio	Biodegradation in Water					
Template:						
HERO ID: 368	38004					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		28553-12-0 and 68515-48-0; dii	sononyl phthalate			
Confidentiality, EndPoint, Type, Guideline		no; primary degradation; experi	nental; other: not reported			
Solvent, Reactivity, Storage, Stab	oility	NR; NR; NR; NR				
Radiolabel, Source, State, Purity		NR; NR; NR; NR Notes: DINP				
Blank and Control		not reported; not reported				
Oxygen and Inoculum		aerobic; other:: non-acclimated				
Duration, Parameter, System, and Sampling Frequency		not reported; not reported; not reported				
pH Adjusted and pH		not reported; not reported				
Concentration		Not Reported				
Composition and Test Temperatu	ire	not reported; not reported				
CEC, Water Aeration Dilution, Coness, and Other Design	ontinuous Dark-	not reported; not reported; Not Reported				
Results Details Method, Results parameter, and	per Degradation	not reported; not reported; Not Reported				
Direct Quantum Yield Results Results Value, Results Standard Deviation, Re- sults Sample Time, and Results Reference Sub- stance Commentments		not reported; not reported; not re	ported; not reported			
Results Remarks and Results Det	tails	half-life 7-40 days; not reported				
Results Mean Total Recovery and Results per Re- not reported; not reported covery						
			EVALUATION			
Domain		Metric	Rating	Comments		

Domain		Metric	Rating	Comments
Domain 1: Test Subst	tance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Cond	litions			
	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.
		Co	ontinued on next page	•••

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		continu	ued from previous	page			
Study Citation:	EC/HC, (2015). S di-C8-10-branche	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters. C9-rich (Diisononyl Phthalate: DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.					
OECD Harmonized	Biodegradation in	Biodegradation in Water					
Template:	Ū.						
HERO ID:	3688004						
		Ι	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.			
Domain 4: Test Organi	sms						
Domain 1. Test organi	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome A	ssessment						
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type.			
		Exposure					
Domain 7: Data Preser	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Results	e	secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
<u> </u>							
Overall Quali	ity Determin	ation	Medium				

* Related References: cites: Lertsirisopon R, Ike M, Fujita M. 2003. Environmental factors affecting degradation of phthalic acid esters. Asian Waterqual 2003, the IWA Asia-Pacific Regional Conference, held in Bangkok, Thailand 19-23 October 2003. p. 19-23 [cited in Lertsirisopon et al. 2009].

Study Citation:	ECJRC, (2003). E	European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"				
OECD Harmonized	initiale (DINP). Riodegradation in Water					
Template:	Diodegradation in					
HERO ID:	679933					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0. Diisononyl nhthalate				
Confidentiality, EndPoint, Ty	ne.	None: Ready Biodegradability: Experimental: OECD Guideline 301 F (Ready Biodegradability: Manometric Respirometry Test)				
Guideline	P°,					
Solvent, Reactivity, Storage, S	Stability	NR; NR; NR				
Radiolabel, Source, State, Pur	rity	NR; NR; NR				
Blank and Control		NR; NR				
Oxygen and Inoculum		NR; not specified				
Duration, Parameter, System, and		28 d; NR: NR; NR				
Sampling Frequency						
pH Adjusted and pH		Not Reported; NR				
Concentration		NR -				
Composition and Test Temper	rature	NR; NR				
CEC, Water Aeration Dilution	n, Continuous Dark-	NR; NR; NR				
ness, and Other Design	14 D 1-4'	NIR, DOD: Mick Descended				
Results Details Method, Resu	itts per Degradation	NK; BOD; Not Reported				
Direct Quantum Yield Results	s					
Results Value, Results Standard Deviation, Re-		70.5%; Not Reported; 28d; Not Reported				
sults Sample Time, and Results Reference Sub-						
stance Compartments						
Results Remarks and Results	Details	The 10-day window was met. Readily biodegradable.; Not Reported				
Results Mean Total Recovery and Results per Re-		Not Reported; Not Reported				
covery						

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Subst	tance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Cond	itions			

		continu	ed from previous	page
Study Citation:	ECJRC, (2003).	European Union risk assessment report:	1,2-Benzenedicarb	oxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"
OECD Harmonized	Biodegradation in	Water		
Template:	Diodegradation in	() alor		
HERO ID:	679933			
		F	VALUATION	
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	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organis	ms			
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding	/Variable Control			
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type.
		Exposure		
Domain 7: Data Present	ation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.
		Kinetic Calculations		
Domain 8: Other	M + 1 17		TT: 1	m 1. 111 1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized
	Matria 18:	Results	NI/A	secondary source.
	Metric 18:	QSAR MODELS	IN/A	Not applicable to this study type.
Overall Over	v Dotometer	ation	Madime	
	y Determina		wieuium	

* Related References: Cites: Exxon Biomedical Sciences (1995). Ready Biodegradability, Manometric Respirometry Test, Unpublished Report No. 199894A. Not previously extracted. HEROID not located.

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP)					
OECD Harmonized	Biodegradation in Water					
Template:	0					
HERO ID:	679933					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0; Diisononyl phthalate				
Confidentiality, EndPoint, Ty	pe,	None; Ready Biodegradability; Experimental; OECD Guideline 301 B (Ready Biodegradability: CO2 Evolution Test)				
Guideline	Stability	ND. ND. ND				
Radiolabel Source State Pu	rity	NR, NR, NR NR NR NR				
Radiolabel, Source, State, Pulity Blank and Control		NR, NR, NR				
Oxygen and Inoculum		NR: not specified				
Duration, Parameter, System, and		28 d; NR; NR				
Sampling Frequency						
pH Adjusted and pH		Not Reported; NR				
Concentration		NR -				
Composition and Test Temper	rature	NR; NR				
CEC, Water Aeration Dilution	n, Continuous Dark-	NR; NR; NR				
ness, and Other Design	ulta non Doorodation	ND, CO2, Not Departed				
Parameter and	ins per Degradation	NR; CO2; Not Reported				
Direct Ouantum Yield Result	s					
Results Value, Results Standard Deviation, Re-		57%; Not Reported; 28d; Not Reported				
sults Sample Time, and Results Reference Sub-						
stance Compartments	nce Compartments					
Results Remarks and Results	Details	Not readily biodegradable. The pass criterion was barely missed.; Not Reported				
Results Mean Total Recovery covery	and Results per Re-	Not Reported; Not Reported				

			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substan	ce				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.	
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 3: Test Condition	ons				
	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.	
Continued on next page					

		contin	ued from previous	page			
Study Citation:	ECJRC, (2003). phthalate (DINP).	European Union risk assessment report:	1,2-Benzenedicarb	poxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"			
OECD Harmonized	Biodegradation in	Water					
Template:	C C						
HERO ID:	679933						
	EVALUATION						
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.			
Domain 4: Test Organisi	ns						
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.			
Domain 5: Outcome Ass	sessment						
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confounding	/Variable Control						
c.	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.			
Domain 7: Data Presenta	ation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			
Overall Qualit	y Determina	ation	Medium				

* Related References: Cites: Exxon Biomedical Sciences (1996b). Ready Biodegradability, Modified Sturm Test. Unpublished Report No. 95#5A, 21.3.96Not previously extracted. HEROID not located.

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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"					
OFCD Harmonized	Biodegradation in	prinalate (DINP). Biodegradation in Water				
Template:	Diodegradation in					
HERO ID:	679933					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0; Diisononyl phthalate				
Confidentiality, EndPoint,	Туре,	None; Ready Biodegradability; Experimental; EPA OTS 796.3260 (Ready Biodegradability: Modified Sturm Test)				
Guideline Solvent Reactivity Storage	e Stability	NR · NR · NR				
Radiolabel Source State I	Purity	NR, NR, NR				
Blank and Control	. unity	NR·NR				
Oxygen and Inoculum		NR; not specified				
Duration, Parameter, System, and		28 d; NR; NR				
Sampling Frequency						
pH Adjusted and pH		Not Reported; NR				
Concentration		NR -				
Composition and Test Tem	perature	NR; NR				
CEC, Water Aeration Diluti	ion, Continuous Dark-	NR; NR; NR				
ness, and Other Design	aulta non Decredation	ND, ND, Not Deposited				
Parameter and	esuits per Degradation	INK; INK; INOI KEPOTIED				
Direct Quantum Yield Resu	ults					
Results Value, Results Sta	ndard Deviation, Re-	81%; Not Reported; 28d; Not Reported				
sults Sample Time, and Results Reference Sub-						
stance Compartments	14- D-4-11-					
Results Remarks and Result		Ine To-day window was met in one of the two test series, but was met based on the mean of the two series.; Not Reported				
covery	ry and Kesuits per Re-	Not Reported; Not Reported				
covery						

	EVALUATION					
Domain		Metric	Rating	Comments		
Domain 1: Test Substa	nce					
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.		
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.		
Domain 2: Test Design	l					
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.		
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.		
Domain 3: Test Condit	ions					
	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.		
Continued on next page						

		contin	ued from previous	page
Study Citation:	ECJRC, (2003). phthalate (DINP).	European Union risk assessment report:	1,2-Benzenedicarb	poxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"
OECD Harmonized	Biodegradation in	Water		
Template:	C C			
HERO ID:	679933			
]	EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisi	ns			
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Ass	sessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding	/Variable Control			
c.	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presenta	ation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.
Overall Qualit	y Determina	ation	Medium	

* Related References: Cites: Hüls AG (1995b). Bestimmung der Biologischen Abbaubarkeit von Vestinol 9 im Modifizierten Sturm Test.Unpublished Report ST-91/95, 6.3.95. Not previously extracted. HEROID not located.

Study Citation: Ex	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for						
D1 OECD Harmonized Bi	usononyl phthala odegradation in	te (DINP) and table of conte Water	nts for DINP dossier information on the	e ECHA website and provided to CPSC on a DVD.			
Template:							
HERO ID: 20	79252						
			EXTRACTION				
Parameter		Data					
CASRN and Test Material		68515-48-0; di-isononyl phtha	late				
Confidentiality, EndPoint, Type,		no; ready biodegradability; exp	perimental; other: standard ready test; simul	ation tests			
Solvent, Reactivity, Storage, Sta	bility	NR; NR; NR; NR					
Radiolabel, Source, State, Purity	/	NR; NR; NR; NR					
Blank and Control		not reported; not reported					
Oxygen and Inoculum		not reported; not specified					
Duration, Parameter, System, and		not reported; not specified: not reported; not reported					
Sampling Frequency							
H Adjusted and pH		Not Reported; Not Reported	of Reported; Not Reported				
Concentration		Not Reported					
Composition and Test Temperate	ure	not reported; not reported					
CEC, Water Aeration Dilution, C less, and Other Design	Continuous Dark-	Not Reported; Not Reported; Not Reported; Not Reported					
Results Details Method, Results	per Degradation	not reported; not reported; not reported					
Parameter, and							
Direct Quantum Yield Results	I Deviation De		www.weater.de				
sults Sample Time and Results	Reference Sub-	not reported; not reported; not reported; Not Reported					
stance Compartments	Reference Sub-						
Results Remarks and Results Details aquatic half-life 10.3 days; half-life under wastewater treatment conditions ~1 day.: readily biodegradable			s ~1 day.; readily biodegradable				
Results Mean Total Recovery and Results per Re- Not Reported; Not Reported							
Jovery							
			EVALUATION				
Domain		Metric	Rating	Comments			

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

Domain 3: Test Conditions

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Study Citation:	ExxonMobil, (20	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for					
	Diisononyl phtha	Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.					
OECD Harmonized	Biodegradation i	Biodegradation in Water					
HERO ID.	2079252						
	2017232						
Damain		l Matria	EVALUATIO	N Commente			
Domain	Matria 5.	Test Method Switzbility	Kating	Comments			
	Metric 5:	Testine Conditions	Low	Test method information was not reported.			
	Metric 6:		Low	lesting conditions were not reported.			
	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 Organis	ms						
C	Metric 9:	Outcome Assessment Methodology	Low	The test organism, species, or inoculum source were not reported; however a standard method was used.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.			
Domain 5: Outcome As	sessment	Test Substance Identity	Madiana				
	Metric 11:	Test Substance Identity	Medium	ences or absence of details were not likely to be severe or have a substantial impact on the study results.			
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported.			
Domain & Confounding	Noriable Control						
Domain 0. Comountaing	Metric 13:	Confounding Variables	N/A	The matrix is not applicable to this study type			
	Metric 13.	Uselth Outcomes Unrelated to	IN/A	The metric is not appricable to this study type.			
	Metric 14:	Exposure	IN/A	The metric is not applicable to this study type.			
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	Low	There was insufficient data.			
	Metric 16:	Statistical Methods and	Low	Statistical analysis or kinetic calculations were not conducted or were not described			
		Kinetic Calculations		clearly.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable			
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	ty Determir	nation	Low				

Study Citation:	HSDB, (2015). Di	HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0).				
OECD Harmonized	Biodegradation in	Biodegradation in Water				
Template:						
HERO ID:	2356022					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Rep	orted			
Confidentiality, EndPoint, 7	Гуре,	None; Not Reported; Not Reported; N	ot Reported			
Guideline	0, 1, 11,					
Solvent, Reactivity, Storage	e, Stability	Not Reported; Not Reported; Not Rep	orted; Not Reported			
Radiolabel, Source, State, F	urity	Not Reported; Not Reported; Not Rep	orted; Not Reported			
Blank and Control		Not Reported; Not Reported				
Oxygen and Inoculum	,	Not Reported; activated sludge (adaptation not specified)				
Duration, Parameter, Syster	n, and	28 days; Not Reported: Not Reported;	Not Reported			
pH Adjusted and pH		Not Reported: Not Reported				
Concentration		35 - 100 mg/I				
Composition and Test Tem	nerature	Not Reported: Not Reported				
CEC Water Aeration Diluti	on Continuous Dark-	Not Reported: Not Reported: Not Reported: Not Reported				
ness, and Other Design	on, Continuous Dark	Not Reported, Not Reported, Not Reported				
Results Details Method, Re	sults per Degradation	Not Reported; Total degradation; Not Reported				
Parameter, and						
Direct Quantum Yield Resu	ilts					
Results Value, Results Sta	ndard Deviation, Re-	45 ppm: 70%; 35 ppm: 57%; 100 ppm: 71%.; Not Reported; Not Reported; Not Reported				
suits Sample Time, and Ke	esuits Reference Sub-					
Results Remarks and Resul	ts Details	Not Reported: Not Reported				
Results Mean Total Recover	ry and Results per Re-	Not Reported: Not Reported				
covery	Very					
			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 1: Test Substan	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		

Domain 2: Test Design

Metric 2:

Test Substance Purity

Domain 2. Test Design				
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance stability, homogeneity, preparation or storage condi-
				tions were not reported in the secondary source.

Medium

The test substance purity was not reported in the secondary source.

Domain 3: Test Conditions

continued from previous page					
Study Citation: OECD Harmonized Template:	HSDB, (2015). E Biodegradation in	Diisononyl phthalate (CASRN: 28553-12-0). n Water			
HERO ID:	2356022				
		EX	VALUATION		
Domain		Metric	Rating	Comments	
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported in the secondary source.	
	Metric 6:	Testing Conditions	Medium	Test conditions were not reported in the secondary source.	
	Metric 7:	Testing Consistency	Medium	Test conditions across sample groups were not reported in the secondary source.	
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.	
Domain 4: Test Organis	sms				
e	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding the inoculum type were not reported in the secondary source.	
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.	
Domain 5: Outcome As	ssessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source.	
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported in the secondary source.	
Domain 6: Confoundin	a Wariable Control				
Domain 0. Comounding	Metric 13.	Confounding Variables	Medium	Sources of variability were not reported in the secondary source	
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type	
	Metrie 11.	Exposure	10/11	The metric is not applicable to the study type.	
Domain 7: Data Present	tation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was not reported in the secondary source.	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	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	A QSAR model was not reported.	
Overall Quali	ty Determin	ation	Medium		

* Related References: Staples CA et al; Chemosphere 35: 667-749 (1997).

Study Citation: H	SDB, (2015). Dii	sononyl phthalate (CASRN: 2	8553-12-0).			
OECD Harmonized B	Biodegradation in Water					
Template:						
HERO ID: 23	356022					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0; No	t Reported			
Confidentiality, EndPoint, Type		Not Reported; Not Reported; No	t Reported; other			
Guideline	1 *1*/					
Solvent, Reactivity, Storage, Sta	ability	Not Reported; Not Reported; No	t Reported; Not Reported			
Radiolabel, Source, State, Purit	У	Not Reported; Not Reported; No	t Reported; Not Reported			
Blank and Control		Not Reported; Not Reported				
Oxygen and Inoculum	,	Not Reported; other:: Inoculum prepared from soil and sewage.				
Sampling Frequency	na	28 days; Test material and ThCO2: Not Reported; Not Reported				
pH Adjusted and pH		Not Reported; Not Reported				
Concentration		Not Reported				
Composition and Test Temperat	ture	Not Reported; Not Reported				
CEC, Water Aeration Dilution, on ness, and Other Design	Continuous Dark-	Not Reported; Not Reported; Not Reported; Not Reported				
Results Details Method, Results Parameter, and	s per Degradation	Not Reported; Not Reported; Not Reported				
Direct Quantum Yield Results						
Results Value, Results Standar	d Deviation, Re-	99%; Not Reported; Not Reported; Not Reported				
sults Sample Time, and Result	l Results Reference Sub-					
Results Remarks and Results D	etails	Theoretical CO2: 62% Not Reported				
Results Mean Total Recovery ar covery	nd Results per Re-	- Not Reported; Not Reported				
			EVALUATION			
Domain		Metric	Rating	Comments		
D D						

Domain		Wiethe	Rating	Comments		
Domain 1: Test Substa	nce					
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported in the secondary source.		
Domain 2. Test Design						
Domain 2: Test Design	1					
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source.		
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance stability, homogeneity, preparation or storage condi- tions were not reported in the secondary source.		
Domain 3: Test Condit	ions					
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported in the secondary source.		
	Metric 6:	Testing Conditions	Medium	Test conditions were not reported in the secondary source.		
	Continued on next page					

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Study Citation: OECD Harmonized	HSDB, (2015). D Biodegradation in	iisononyl phthalate (CASRN: 28553-12-0) Water			
HEBO ID.	2356022				
	2330022	F			
Domain		L. Metric	VALUATION	Comments	
Domani	Metric 7.	Testing Consistency	Medium	Test conditions across sample groups were not reported in the secondary source	
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.	
Domain 4: Test Organis	Sms Matria Or	Outcome Assessment Mathadalaav	Madium		
	Metric 9: Metric 10:	Sampling Mathada	Medium N/A	Details regarding the inoculum type were not reported in the secondary source.	
	Wietife 10.	Sampling Methods	IN/A	The metric is not applicable to the study type.	
Domain 5: Outcome As	ssessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source.	
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported in the secondary source.	
Domain 6: Confoundin	g/Variable Control				
Domain 0. Comounding	Metric 13.	Confounding Variables	Medium	Sources of variability were not reported in the secondary source	
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type	
		Exposure	10/11	The moule is not approache to the study type.	
Domain 7. Data Present	tation and Analysis				
Domain 7. Data Presen	Metric 15:	Data Reporting	Medium	The analytical method was not reported in the secondary source	
	Metric 16:	Statistical Methods and	Medium	Kinetic calculations were not reported in the secondary source.	
		Kinetic Calculations			
Domain 8: Other					
2 children of Other	Metric 17:	Verification or Plausibility of	Low	Due to limited information, evaluation of the reasonableness of the study results was not	
		Results		possible.	
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.	
Overall Ovel	ty Dotormin	ation	Modium		
	iy Determini	auvii	wieuiuiii		

* Related References: Sugatt RH et al; Appl Environ Microbiol 47: 601-6 (1984).

Study Citation: OECD Harmonized Template:	HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0). Biodegradation in Water						
HERO ID:	2356022						
EXTRACTION							
Parameter		Data					
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Reported					
Confidentiality, EndPoint, T	ype,	None; Not Reported; Not Reported; Not Reported					
Guideline Solvent, Reactivity, Storage, Stability		Not Reported; Not Reported; Not Reported; Not Reported					
Radiolabel, Source, State, Purity		Not Reported; Not Reported; Not Reported; Not Reported					
Blank and Control		Not Reported; Not Reported					
Oxygen and Inoculum		Not Reported; activated sludge (adaptation not specified)					
Duration, Parameter, System, and		4 days; Not Reported: Not Reported; 1 and 4 days					
Sampling Frequency							
pH Adjusted and pH		Not Reported; Not Reported					
Concentration		1 - 3 mg/L					
Composition and Test Temperature		Not Reported; Not Reported					
CEC, Water Aeration Dilution, Continuous Dark-		Not Reported; Not Reported; Not Reported					
Results Details Method, Results per Degradation		Not Reported; Not Reported; Not Reported					
Parameter, and							
Direct Quantum Yield Results							
Results Value, Results Standard Deviation, Re-		68% after 1 day at 1-3 ppm; >90% after 4 days at 3 ppm.; Not Reported; Not Reported; Not Reported					
sults Sample Time, and Res	sults Reference Sub-						
Statue Comparinents Results Remarks and Results Details		Not Reported: Not Reported					
Results Mean Total Recovery and Results per Re-		Not Reported: Not Reported					
covery							
Domain		Matria		Commente			
		wieute	Kaung	Comments			

Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported in the secondary source.		
Domain 2: Test Design						
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source.		
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance stability, homogeneity, preparation or storage condi- tions were not reported in the secondary source.		
Domain 3: Test Conditions						
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported in the secondary source.		
	Metric 6:	Testing Conditions	Medium	Test conditions were not reported in the secondary source.		
Continued on next page						
		continu	ed from previous	page		
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Study Citation: OECD Harmonized	HSDB, (2015). D Biodegradation in	iisononyl phthalate (CASRN: 28553-12-0). Water				
HERO ID:	2356022					
		F	VALUATION			
Domain		Metric	Rating	Comments		
	Metric 7:	Testing Consistency	Medium	Test conditions across sample groups were not reported in the secondary source.		
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.		
Domain 4: Tast Organia	m .e					
Domain 4. Test Organisi	Metric 9	Outcome Assessment Methodology	Medium	Details regarding the inoculum type were not reported in the secondary source		
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type		
		I C				
Domain 5: Outcome Ass	sessment					
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source.		
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported in the secondary source.		
Domain 6: Confounding	/Variable Control					
	Metric 13:	Confounding Variables	Medium	Sources of variability were not reported in the secondary source.		
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type.		
		Exposure				
Domain 7: Data Presenta	ation and Analysis					
Domain // Duna 11000ina	Metric 15:	Data Reporting	Medium	The analytical method was not reported in the secondary source.		
	Metric 16:	Statistical Methods and	Medium	Kinetic calculations were not reported in the secondary source.		
		Kinetic Calculations				
Domain 8: Other						
2 sinuin 6. Guiler	Metric 17:	Verification or Plausibility of	Low	Due to limited information, evaluation of the reasonableness of the study results was not		
		Results		possible.		
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.		
Overall Qualit	v Determin	ation	Medium			

* Related References: Staples CA et al; Chemosphere 35: 667-749 (1997).

Study Citation:HSOECD HarmonizedBiTranslationBi	SDB, (2015). Dii iodegradation in V	sononyl phthalate (CASRN: 28553-12-0). Water			
HERO ID: 23	356022				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Reported			
Confidentiality, EndPoint, Type,	,	None; Not Reported; Not Reported; EU Method C.4-F (Determination of the "Ready" Biodegradability - MITI Test)			
Guideline Solvent Reactivity Storage Sta	bility	Not Reported: Not Reported: Not Reported: Not Reported			
Radiolabel Source State Purity	v	Not Reported, Not Reported, Not Reported, Not Reported			
Blank and Control	,	Not Reported, Not Reported			
Oxygen and Inoculum		Not Reported; activated sludge (adaptation not specified)			
Duration, Parameter, System, an	nd	4 weeks: Not Reported: Not Reported: Not Reported			
Sampling Frequency					
pH Adjusted and pH		Not Reported; Not Reported			
Concentration		100 mg/L			
Composition and Test Temperate	ure	Not Reported; Not Reported			
CEC, Water Aeration Dilution, C	Continuous Dark-	Not Reported; Not Reported; Not Reported; Not Reported			
Results Details Method, Results Parameter, and	s per Degradation	Not Reported; Theoretical BOD; Not Reported			
Direct Quantum Yield Results Results Value, Results Standard sults Sample Time, and Results stance Compartments	d Deviation, Re- s Reference Sub-	74%; Not Reported; Not Reported; Not Reported			
Results Remarks and Results De	etails	Not Reported; Not Reported			
Results Mean Total Recovery and covery	d Results per Re-	Not Reported; Not Reported			
		EVALUATION			

			LIALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance stability, homogeneity, preparation or storage condi- tions were not reported in the secondary source.
Domain 3: Test Condit	ions			
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Test conditions were not reported in the secondary source.
			Continued on next page	

		continu	ed from previous	page
Study Citation: OECD Harmonized	HSDB, (2015). D Biodegradation in	iisononyl phthalate (CASRN: 28553-12-0). Water		
HERO ID:	2356022			
		F	VALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Test conditions across sample groups were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Tast Organia	m .e			
Domain 4. Test Organisi	Metric 9	Outcome Assessment Methodology	Medium	Details regarding the inoculum type were not reported in the secondary source
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type
		I C		
Domain 5: Outcome Ass	sessment			
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported in the secondary source.
Domain 6: Confounding	/Variable Control			
	Metric 13:	Confounding Variables	Medium	Sources of variability were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type.
		Exposure		
Domain 7: Data Presenta	ation and Analysis			
Domain // Duna 11000ina	Metric 15:	Data Reporting	Medium	The analytical method was not reported in the secondary source.
	Metric 16:	Statistical Methods and	Medium	Kinetic calculations were not reported in the secondary source.
		Kinetic Calculations		
Domain 8: Other				
2 sinuin 6. Guiler	Metric 17:	Verification or Plausibility of	Low	Due to limited information, evaluation of the reasonableness of the study results was not
		Results		possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Qualit	v Determin	ation	Medium	

* Related References: NITE; Chemical Risk Information Platform (CHRIP). Biodegradatoin and Bioconcentration. Tokyo, Japan; Natl Inst Tech Eval.

Study Citation:HOECD HarmonizedB	HSDB, (2015). Dii Biodegradation in V	sononyl phthalate (CASRN: 28553-12- Vater)).		
Template: HERO ID: 2	2356022				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Reported			
Confidentiality, EndPoint, Type	e,	Not Reported; Not Reported; Not Reported	; other: Semi-continuous activated sludge ter	st (Soap and Detergent Association procedure)	
Guideline Solvent, Reactivity, Storage, St	tability	Not Reported; Not Reported; Not Reported	; Not Reported		
Radiolabel, Source, State, Purit	ty	Not Reported; Not Reported; Not Reported	; Not Reported		
Blank and Control		Not Reported; Not Reported			
Oxygen and Inoculum		Not Reported; activated sludge (adaptation	not specified)		
Duration, Parameter, System, a	and	24 hours; Not Reported: Not Reported; Not	tReported		
Sampling Frequency		Not Domosto de Not Domosto d			
pH Adjusted and pH		Not Reported; Not Reported			
Concentration	-	Not Reported			
Composition and Test Tempera	Continuous Dorle	Not Reported; Not Reported	Not Doportod		
ness, and Other Design	Continuous Dark-	Not Reported; Not Reported; Not Reported	r, Not Reported		
Results Details Method, Result	ts per Degradation	Not Reported; Not Reported; Not Reported	l		
Parameter, and					
Direct Quantum Yield Results Pasults Value Pasults Standar	rd Deviation Pe	67.8%: Not Penorted: Not Penorted: Not I	anorted		
sults Sample Time, and Results Reference Sub-		07.8%, Not Reported, Not Reported, Not I	ceported		
stance Compartments					
Results Remarks and Results D	Details	Not Reported; In die-away phase of the tes	ting: it took 5 days to reach 90% degradation	l.	
Results Mean Total Recovery and	nd Results per Re-	Not Reported; Not Reported			
covery					
			EVALUATION		
Domain		Metric	Rating	Comments	

Domain		Metric	Rating	Comments
Domain 1: Test Substan	ice			
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The source or purity of the test substance was not reported in this secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not reported in this secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in this secondary source.
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	High	The test method was suitbale.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in this secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in this secondary source.
			Continued on next page	

		continue	d from previous	page
Study Citation: OECD Harmonized	HSDB, (2015). D Biodegradation in	iisononyl phthalate (CASRN: 28553-12-0). n Water		
HERO ID:	2356022			
		EV	ALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in this secondary source.
Domain 4: Test Organis	sms			
U	Metric 9:	Outcome Assessment Methodology	Medium	Specific details regarding this metric were not reported in this secondary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in this secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in this secondary source.
Domain 6: Confoundin	g/Variable Control			
Domain of Comoundary	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in this secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in this secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in this 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	A QSAR model was not reported.
Overall Quali	ty Determin	ation	Medium	

* Related References: The test has been previously reported by HERO ID 679671. HERO ID not available in distiller at time of extraction.

Study Citation: OECD Harmonized	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. Biodegradation in Water				
HERO ID:	5508730				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		68515-48-0; diisononyl phthalate			
Confidentiality, EndPoint, T	ſype,	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: DINP			
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, Syster	n, and	14 days; test mat: Not Reported; 7 and 14 days			
Sampling Frequency		Net Decrete de 7.0			
pH Adjusted and pH		Not Reported, 7.0			
Concentration		52.50 - 55.50 ug/L Wastewater: collected from the local WWTP in Lomza Poland: $25\pm0.5^{\circ}$ C			
CEC Water Aeration Diluti	on Continuous Dark-	wastewater. conclude from the local w w 1r in Loniza, rotatio, 25 ± 0.5 C			
ness, and Other Design	on, Continuous Dark-	not reported, not reported, no, day/ingin cycle 10/0 nours			
Results Details Method, Results per Degradation		GC/MS; linearity range 1.0-100 ug/L; R2 0.995; limit of detection 0.32 ug/L; RSD 9.7%; % removal; Not Reported			
Parameter, and					
Results Value Results Star	uts ndard Deviation Re-	>95.6%: not reported: 7 days: not reported			
sults Sample Time, and Re	sults Reference Sub-				
stance Compartments					
Results Remarks and Resul	ts Details	conventional WWTP reduction was >95.6%; removal of nutrients (75-78%) and reduction of oxygen demand (93-97%)			
Results Mean Total Recover	ry and Results per Re-	not reported; not reported			
covery					

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	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.

		contin	ued from pre	vious page		
Study Citation:	Kotowska, U., Ka other contaminan	arpinska, J., Kapelewska, J., Kowejsza, E. ts from municipal wastewater during culti	M., Piotrowsk vation of Wolf	ca-Niczyporuk, A., Piekutin, J., Kotowski, A. (2018). Removal of phthalates and fia arrhiza. Process Safety and Environmental Protection 120:268.		
OECD Harmonized	ed Biodegradation in water					
HERO ID:	5508730					
		I	EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 3: Test Conditi	ions					
	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 de-		
	Metric 7:	Testing Consistency	Medium	some test conditions across samples or study groups were not reported, but these dis- crepancies 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 Organis	sms 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		
	Metric 10:	Sampling Methods	N/A	Impact on study results.		
	Methe 10.	Sampling Methods	IN/A	The metric is not applicable to this study type.		
Domain 5: Outcome As	ssessment					
Domain 5. Outcome As	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	g/Variable Control Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not reported but their omission likely did not impact the		
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.		
Domain 7: Data Present	tation 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		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).		
Domain & Other						
Domain 8: Other	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable		
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.		
		Contin	ued on next 1	Dage		

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		continued from previous page		
Study Citation:	Kotowska, U., Karpinska, J., Kapelewska, J., K other contaminants from municipal wastewater	owejsza, E. M., Piotrowska-Niczyporuk, A during cultivation of Wolffia arrhiza. Proce	A., Piekutin, J., Kotowski, A. (2018). Removal of phthalates and ess Safety and Environmental Protection 120:268.	
OECD Harmonized	Biodegradation in Water			
Template:				
HERO ID:	5508730			
		EVALUATION		
Domain	Metric	Rating	Comments	
Overall Qualit	ty Determination	High		

Study Citation: OECD Harmonized	Mackay, D., Shiu, Biodegradation in	W. Y., Ma, K. C. (2006). Diisononyl phthalate (DINP). :3127-3128. Water
HERO ID:	5348354	
		EXTRACTION
Parameter		Data
CASRN and Test Material		28553-15-0. 68515-48-0: DINP
Confidentiality, EndPoint, Ty Guideline	ype,	no; primary biodegradation; not specified; other: Shake flash CO2 evolution test
Solvent, Reactivity, Storage,	Stability	NR; NR; NR
Radiolabel, Source, State, Pu	urity	NR; NR; NR Notes: NR
Blank and Control		NR; NR
Oxygen and Inoculum		NR; other:: surface water
Duration, Parameter, System Sampling Frequency	n, and	NR; NR; NR
pH Adjusted and pH		NR; NR
Concentration		NR NR - NR NR
Composition and Test Tempo	erature	NR; NR
CEC, Water Aeration Dilutio ness, and Other Design	on, Continuous Dark-	NR; NR; NR
Results Details Method, Res Parameter, and Direct Quantum Yield Resul	sults per Degradation	NR; NR
Results Value, Results Stan sults Sample Time, and Res stance Compartments	dard Deviation, Re- sults Reference Sub-	NR; NR; NR
Results Remarks and Results	s Details	Half-life=5.31 d; Rate constant = $0.131/day$
Results Mean Total Recovery and Results per Re- covery		NR; NR

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ice			
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Medium	Not reported in this source; additional details may be available in the source cited.
			Continued on next page.	

		continu	ued from previous	page
Study Citation: OECD Harmonized Template:	Mackay, D., Shiu, Biodegradation in	, W. Y., Ma, K. C. (2006). Diisononyl phth Water	nalate (DINP). :312	7-3128.
HERO ID:	5348354			
	5510551	-		
Domain		Metric	EVALUATION Dating	Comments
Domani	Metric 6:	Testing Conditions	Medium	Not reported in this source: additional details may be available in the source cited
	Metric 7:	Testing Consistency	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this source; additional details may be available in the source cited.
	incure o.	System Type and Design	meanin	Tot reported in this source, additional deales may be available in the source ored.
Domain 4: Test Organis	sms			
0	Metric 9:	Outcome Assessment Methodology	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this source; additional details may be available in the source cited.
Domain 6: Confounding	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this source; additional details may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric does not apply to this study type.
		Exposure		
Domain 7: Data Present	tation and Analysis			
Domain 7. Data Presen	Metric 15.	Data Reporting	Medium	Not reported in this source: additional details may be available in the source cited
	Metric 16:	Statistical Methods and	Medium	Not reported in this source; additional details may be available in the source cited
	metric 10.	Kinetic Calculations	meanum	
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Low	Due to limited information, evaluation of the reasonableness of the study results was not
	M 10	Results	27/4	possible.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.
0	4 D - 4 *	- 4	N/ - J!	
Overall Quali	ty Determin	ation	Niedium	

* Related References: Citing Sugatt et al., 1984 HERO ID 5348362.

Study Citation: N	Monsanto, (1978).	Environmental Sciences Ro	eport: Biodegradabilty of plasticizers.			
OECD Harmonized Biodegradation in		Water				
Template:						
HERO ID: 1	10616941					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		28553-12-0; Diisononyl phth	nalate			
Confidentiality, EndPoint, Type	e,	no; primary biodegradability	; experimental; other: Semi-Continuous Activated	Sludge (SCAS)		
Guideline Solvent, Reactivity, Storage, St	tability	NR: NR: NR: NR				
Radiolabel, Source, State, Puri	ity	NR; NR; NR; NR				
Blank and Control		not reported; not reported				
Oxygen and Inoculum		aerobic; activated sludge, do	mestic, non-adapted: mixed liquor (activated sludg	e and supernatant)		
Duration, Parameter, System, a	and	ca. 22 weeks; test mat.: SCA	S Unit; 50 mL withdrawn weekly after one cycle			
Sampling Frequency						
pH Adjusted and pH		not reported; not reported				
Concentration		3 (4.5) ppm (mg) [addition ra	ate added per cycle]			
Composition and Test Tempera	ature	not reported; not reported				
CEC, Water Aeration Dilution,	Continuous Dark-	not reported; retention/aeration cycle = 23-167 hours; not reported; not reported				
ness, and Other Design Results Details Method Result	ts per Degradation	Haven astroation (Applytical Chamistry Method No. 71, 18) followed by EID CC MS: disappearance of test materials not reported				
Parameter, and	is per Degradation	Hexale extraction (Analytica	ar Chemistry Method No. 71-18) followed by FID	SC-MS, disappearance of test material, not reported		
Direct Quantum Yield Results						
Results Value, Results Standard Deviation, Re-		32±10; 95% CL; 24 hour cy	cle; not reported			
sults Sample Time, and Results Reference Sub-						
stance Compartments						
Results Remarks and Results I	Details	Significant inhibition of the	normal sludge growth rate (monitored via concentr	ation of suspended solids) was observed; fresh inoculum added at		
		mid-point, decrease in susper	nded solids occurred again.; not reported			
Results Mean Total Recovery a	and Results per Re-	mixed liquor extraction: 87.9	9±6.0% recovery; not reported			
covery						
			EVALUATION			
Domain		Metric	Rating	Comments		

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

		contin	ued from prev	vious page		
Study Citation:	Monsanto, (1978)	. Environmental Sciences Report: Biodeg	gradabilty of pl	lasticizers.		
OECD Harmonized	Biodegradation in	Water				
Template:						
HERO ID:	10616941					
	EVALUATION					
Domain		Metric	Rating	Comments		
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.		
Domain 3: Test Conditi	ons					
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	Low	There were omissions in testing conditions.		
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.		
	Metric 8:	System Type and Design	High	The system type and design was appropriate for the study.		
Domain 4. Test Organis	212.6					
Domanii 4. Test Organis	Metric 9.	Outcome Assessment Methodology	High	The inoculum source was reported and routinely used for similar study types		
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study		
	Wetter 10.	Sampling Methods	10/1	The metric is not applicable to the study.		
Domain 5: Outcome As	ssessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology reported the intended outcome of interest.		
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.		
Domain 6: Confounding	g/Variable Control					
	Metric 13:	Confounding variables	Medium	Test material was inhibitive to the inoculum.		
	Metric 14:	Exposure	N/A	The metric is not applicable to the study.		
Domain 7: Data Dra	tation and Analysi-					
Domain 7: Data Presen	Metric 15	Data Penorting	Madium	Some analytical datail was amitted		
	Metric 15.	Statistical Matheda and	N/A	The metric is not employed to the study		
	Wietric 10.	Kinetic Calculations	IN/A	The metric is not applicable to the study.		
		Amone Caronations				
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable; inhibition was observed.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study.		
Overall Quali	tv Determin	ation	High			
Yuun Yuun			8-1			

Study Citation:	Monsanto, (1983).	Ultimate biodegradation screening of selected phthalate esters.			
OECD Harmonized	Biodegradation in	Water			
Template:	4 6 6 7 4 6 6				
HERO ID:	1325488				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0; Dinonylphthalate			
Confidentiality, EndPoint, T	ype,	None; inherent biodegradation screening test; Experimental; other: Similar to that described in ASTM Draft No. 3 for the "Proposed Standard			
Guideline		Practice for the Determination of the Ultimate Biodegradability of Organic Chemicals"			
Solvent, Reactivity, Storage,	, Stability	NR; NR; NR			
Radiolabel, Source, State, Pu	urity	NR; Monsanto Industrial Chemicals Company; NR; NR			
Blank and Control		Triplicate flasks for controls were reported; Triplicate positive controls, dextrose and sodium citrate, were reported			
Oxygen and Inoculum		aerobic; other:: 14 day acclimated mixture of soil, raw sewage, and activated sludge mixed liquor			
Duration, Parameter, System	i, and	35 days; not specified: Shake flask; 3, 7, 14, 21, 28, and 35 days			
pH Adjusted and pH		Not Reported: Not reported			
Concentration		20 mg/L			
Composition and Test Temp	erature	minimal salts media; Not reported			
CEC, Water Aeration Dilutio	on, Continuous Dark-	Not reported; 70% oxygen in nitrogen; yes; Not applicable			
ness, and Other Design					
Results Details Method, Results per Degradation		Titration of barium hydroxide solutions; CO2 Evolution; Not Reported			
Parameter, and Direct Quantum Vield Resul	Ite				
Results Value, Results Standard Deviation, Re-		84% (average; 76-97% range); 11; 35 days; 102 and 85%; respectively			
sults Sample Time, and Res	sults Reference Sub-				
stance Compartments					
Results Remarks and Result	s Details	Not applicable; Not reported			
Results Mean Total Recovery	y and Results per Re-	Not applicable; Not applicable			
covery					

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The source of the test substance was inferred from the study details. Details regarding the test substance purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Results for the positive controls were reported; however, data for a blank or sterile con- trol was not reported.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
			Continued on next page	

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		cont	inued from previous	page
Study Citation:	Monsanto, (1983)	. Ultimate biodegradation screening of	selected phthalate este	ers.
OECD Harmonized	Biodegradation in	Water		
Template:				
HERO ID:	1325488			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditi	ions			
	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 /:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	Medium	Limited details regarding test system design were reported; however, the omissions were not likely to have had a substantial impact on the interpretation of the study results.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	Medium	Limited details regarding the inoculum were reported; however, the omissions were not likely to have had a substantial impact on the interpretation of the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Details regarding this metric were omitted; however, this was not likely to have hindered the interpretation of the results.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	N/A	No confounding variables were reported.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.
		Exposure		
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 16:	Statistical Methods and	Medium	There were omissions in the calculation details; however, sufficient data were reported
		Kinetic Calculations		to determine that the omissions were not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quali	ty Determin	ation	Medium	

Study Citation:	O'Grady, D. P., He Microbiology 49(2	oward, P. H., Werner, A. F. (1985). Activated sludge biodegradation of 12 commercial phthalate esters. Applied and Environmental (2):443-445.			
OECD Harmonized H	Biodegradation in	Water			
Template:	-				
HERO ID: 6	679791				
		EXTRACTION			
Parameter		Data			
CASEN and Test Material		28553-12-0- DIND			
Confidentiality EndPoint Typ	ne -	None: screening test: Experimental: other: SCAS test followed by a die-away test			
Guideline	,				
Solvent, Reactivity, Storage, S	Stability	NR; NR; NR			
Radiolabel, Source, State, Puri	ity	NR; NR; NR			
Blank and Control		NR; however, standard procedure used; diethylene glycol control			
Oxygen and Inoculum		aerobic; activated sludge (adaptation not specified): Acclimated mixed culture from SCAS procedure used in a 19-day die-away test			
Duration, Parameter, System, a	and	up to 19 days; test mat.: semicontinuous activated sludge units; 0, 1, 2, 3, 4, 5, 9, 12, 15, and19 or until >90% degradation			
pH Adjusted and pH		Not Reported; NR; however, standard procedure used			
Concentration		1 - 3 mg/L			
Composition and Test Temperation	ature	synthetic sewage; NR; however, standard procedure used			
CEC, Water Aeration Dilution,	, Continuous Dark-	NR; however, standard procedure used; Aerated wastewater/sewage; NR; however, standard procedure used; Not Reported			
Results Details Method. Result	lts per Degradation	extraction and analysis procedures from Saeger and Tucker, direct chemical analysis: Not Reported: Not Reported			
Parameter, and		······································			
Direct Quantum Yield Results	5				
Results Value, Results Standard Deviation, Re-		% degradation (mean):67.8% in 24 hours, SCAS test% degradation:90% in 5 days, die-away test; 7.2% for 24 hour test (standard error for 2 trials);			
sults Sample Time, and Results Reference Sub-		Not Reported; Not Reported			
Results Remarks and Results I	Details	Not Reported: Not Reported			
Results Mean Total Recovery a	and Results per Re-	>90%; Not applicable			
covery					
		EVALUATION			

			LVALUATIO	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Sterile controls details were not provided but the use of a standard method was report.
	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

		contin	nued from pre	vious page
Study Citation:	O'Grady, D. P., H Microbiology 49(Biodegradation in	Ioward, P. H., Werner, A. F. (1985). Ac 2):443-445. Water	ctivated sludge	biodegradation of 12 commercial phthalate esters. Applied and Environmental
Template:	Biodegradation in	water		
HERO ID:	679791			
			EVALUATIO	N
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4. Test Organis	sms			
Domain 1. Test organis	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable.
Domain 5: Outcome As	reasonant			
Domain 5. Outcome As	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Present	tation and Analysis			
2	Metric 15:	Data Reporting	Medium	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some details were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable.
Overall Qualit	ty Determin	ation	High	

 * Related References: Study related to HERO ID 1316206 and 5348362

Study Citation:	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.					
OECD Harmonized	Biodegradation in Water					
Template: HERO ID:	680132					
			EXTRACTIO	N		
Parameter		Data				
CASRN and Test Material		28553-12-0; DINP				
Confidentiality, EndPoint, T Guideline	ype,	None; ready biodegradability; Exper	imental; OECD Guidel	ine 301 B (Ready Biodegradability: CO2 Evolution Test)		
Solvent, Reactivity, Storage	, Stability	NR; NR; NR; NR				
Radiolabel, Source, State, P	urity	NR; NR; NR; NR				
Blank and Control		Not reported; Not reported				
Oxygen and Inoculum		aerobic; activated sludge, domestic (adaptation not specified	d): mixed with mineral medium		
Duration, Parameter, Systen Sampling Frequency	n, and	28 days; CO2 evolution: Sturm test vessels; Regular intervals, starting after 30 minutes				
pH Adjusted and pH		Not Reported; Not reported				
Concentration		15 - mg organic carbon				
Composition and Test Temp	erature	Not reported; Not reported				
CEC, Water Aeration Dilution Dilution Dilution CEC, and Other Design	on, Continuous Dark-	Not reported; Not reported; Not reported; Not Reported				
Results Details Method, Res Parameter, and	sults per Degradation	Carbon analyzer TOC 500; CO2 evo	lution; Not Reported			
Direct Quantum Yield Resu Results Value, Results Star sults Sample Time, and Re stance Compartments	lts ndard Deviation, Re- sults Reference Sub-	79%; Not reported; 28 days; 88%/28d, met 10-d window.				
Results Remarks and Result	s Details	Average of two replicates. Readily biodegradable; Reported to meet the 10-d window based on degradation plot. Reference substance = sodium benzoate.; Trial 1: $0\%/0.5h$, $-1\%/2d$, $8\%/6d$, $30\%/9d$, $51\%/14d$, $64\%/20d$, $78\%/23d$, $74\%/28d$, $77\%/29d$ Trial 2: $0\%/0.5h$, $1\%/2d$, $6\%/6d$, $32\%/9d$, $60\%/14d$, $73\%/20d$, $78\%/23d$, $84\%/28d$, $84\%/29d$, $78\%/29d$, $78\%/2d$, $73\%/9d$, $56\%/14d$, $69\%/2d$, $79\%/23d$, $84\%/28d$, $82\%/29d$, $79\%/2d$, $78\%/2d$, $78\%/2d$, $78\%/2d$, $78\%/2d$, $79\%/2d$, $82\%/2d$, $82\%/29d$, $82\%/29d$, $78\%/2d$, $82\%/2d$, $82\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $78\%/2d$, $78\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, $78\%/2d$, $82\%/2d$, 82				
Results Mean Total Recover covery	y and Results per Re-	Not reported; Not reported		o lo		
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substanc	e					
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.		
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported but unlikely to have substantial impact on the study results.		

Metric 3:	Study Controls	High	Concurrent positive control was included and the results were valid.	

Study Citation: Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biologradation of DEHP, DBP, and DINP: poorly water soluble and widely used phihalar plasticizers. Builtin of Environmental Contamination and Toxicology 58(4):527-534. OBCD Harmonized Templet: FVALUATION IRRO ID: 680132 EVALUATION Comments Metric 4: Test Substance Stubility Metric 5: Test Method Suitability Metric 6: Test Method Suitability Metric 7: Test Method Suitability Metric 7: Test and Consistency Metric 7: Testing Conditions Metric 8: System Type and Design Metric 9: Outcome Assessment Methodology Metric 9: Outcome Assessment Methodology Metric 9: Outcome Assessment Methodology Metric 10: Sampling Methods N/A The test organisms used for anarobic biology and used on study results. Domain 4: Test Organisms Metric 10: Sampling Methods Notic 11: Test Substance Identity Metric 12: Test Substance Identity Metric 11: Test Substance Identity Metric 12: Test Substance Identity<	continued from previous page							
OECD Harmonized Template: HERO ID: Biodegradation in Water Template: HERO ID: Biodegradation in Water Template: HERO ID: 680132 EVALUATION Comments Comments Domain 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 stability or not storage conditions were not not likely to have a substance stability or status results. Domain 3: Test Conditions Metric 5: Test Method Suitability The test method was suitable for the test substance. Metric 6: Testing Conditions Medium The ever consistent serons samples or stardy conditions or enor to determine that these or unisions on testing conditions or enor to the ever source on missions in system or stardy conditions of the exposure were documented. Metric 7: Testing Consistency High There were none missions in system type and design, however, the omissions were not includ and promptie (size characeristics). The conditions or the exposure were documented. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High High The outcome assessment information or inoculum source were reported and the test organism, service, in cuclum are routinely used for anaerobic biologradation study for the study method interest. Domain 5: Outcome Assessment Metric 10: Sampling Methods N/A The outcome assessment methodology addressed or reported the intended outcome(s) of interest. and used videly accepted methods/approaches for the elemical	Study Citation:	Scholz, N., Diefe phthalate plasticiz	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534.					
Impact: HERO ID: 680132 Domain Metric EVALUATION Rating Comments Domain 5: Test Substance Stability Metric Rating Metric 4: Comments Domain 3: Test Conditions Metric 5: Test Method Suitability High Metric 6: Testing Conditions Test Substance Stability Metric 7: Testing Consistency High Metric 8: System Type and Design Medium Metric 7: Testing Consistency High Metric 8: System Type and Design Medium Metric 7: Testing Consistency High Metric 8: The test organism information or incculum source were reported and the test organism. species, or uncoluum source were reported and the test organism. species, or uncoluum source were reported and the test organism. species, or uncoluum source were reported and the test organism. species, or uncoluum are routinely used for similar study types and appropriate (e.g., acrobic mucrogramisms used for manerotic biolegrafiation study in the study method survey in route. Domain 4: Test Organisms Metric 10: Sampling Methods N/A The metris is not applicable to	OECD Harmonized	Biodegradation in Water						
ENAL OP. Good S2 Domain Metric Rating Comments Metric 4: Test Substance Stability Medium The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to induce a substantial impact on study results. Domain 3: Test Conditions Metric 5: Test Method Suitability High Metric 6: Testing Conditions Medium The test method was suitable for the test substance. Metric 6: Testing Conditions Medium The test method was suitable for the test substance. Metric 7: Testing Conditions Medium The test method was suitable for the test substance. Metric 8: System Type and Design Medium The test conditions were consistent across samples or study groups (i.e., same exposure method and liming, comparable particle size characteristics). The conditions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High Metric 10: Sampling Methods N/A The metric is not applicable to this study type. Domain 5: Outcome Assessment Metric 11: Test Substance Purity <t< th=""><th>Template:</th><th>680132</th><th></th><th></th><th></th></t<>	Template:	680132						
Domain Metric Rel DATION Domain Metric Rel is Rel is Comments Metric 4: Test Substance Stability Medium The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to induce the test substance or were not likely to have a substantial impact on study results. Domain 3: Test Conditions Test Method Suitability High The test method was suitable for the test substance. Metric 6: Testing Conditions Metric for: Testing Conditions There were consistent across samples or study groups (i.e., same exposure method and timing: comparable particle size characteristics). The conditions of the exposure method and timing: comparable particle size characteristics). The conditions of the exposure were documented. Metric 8: System Type and Design Medium There were solutions in system type and design; however, the omissions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., are there interime there informations used for anaerobic biologradation study) for the study method or route. Domain 5: Outcome Assessment		000132						
Domain Test Substance Stability Medium The test substance stability, homogeneity, preparation or storage conditions were not include to study results. Domain 3: Test Conditions Metric 5: Test Method Swiiability High The test substance in test substance. Metric 6: Test Method Swiiability High The test method was suitable for the test substance. Metric 7: Testing Conditions Metric method was suitable for the test substance. Metric 7: Testing Consistency High The conditions were not likely to have a substantial impact on study results. Metric 8: System Type and Design Metfilm There were some omissions in system rype and design; however, the omissions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High Metric 10: Sampling Methods N/A The outcome assessment methodology addressed or reported the intended outcome(s) of interest, and 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, and study type. The outcome assessment methodology addressed orereported the intended outcome(s) of interest, and study ideg ana	Domain		Matric	EVALUATIO	Comments			
Domain 3: Test Conditions Metric 5: Test Method Suitability High The test method was suitable for the test substance. Metric 6: Testing Conditions Medium There were omissions in testing conditions reported but sufficient data were reported to determine that these omissions were not likely to have a substantial impact on study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for nanerobic biodegradation study) for the study method or or out. Domain 5: Outcome Assessment 1 Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest, and used viele) accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Confounding Variables High Sources of variability or uncertainty in the measurements, and statistical techniques and byzero Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type. Domain 6: Confounding/Variable <td></td> <td>Metric 4:</td> <td>Test Substance Stability</td> <td>Medium</td> <td>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.</td>		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.			
Metric 5: Test Method Suitability High The test method was suitable for the test substance. Metric 6: Testing Conditions The were omissions in testing conditions reported but sufficient data were reported to determine that these omissions were not likely to have a substantial impact on study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented. Metric 7: Testing Consistency High There were omissions were not likely to have a substantial impact on study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High Metric 10: Sampling Methods N/A The metric is not applicable to this study type. Domain 5: Outcome Assessment High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Metric 12: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable) were considered and acounted for in data evaluation and all reported variabilit	Domain 3: Test Condition	ons						
Metric 6: Testing Conditions Medium There were comissions in testing conditions reported but sufficient data were reported to determine that these omissions were not likely to have a substantial impact on study results. Metric 7: Testing Consistency High Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented. Metric 8: System Type and Design Medium There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobio microorganisms used for anactrobic biodegradation study) for the study method or route. Domain 5: Outcome Assessment Methods N/A The outcome assessment methodology addressed or reported the intended outcome(s) of interest, aar dused videly accepted methods/approaches for the chemical and media being analyzed. Domain 5: Outcome Assessment Purity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest, and used videly accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Con		Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.			
Metric 7: Testing Consistency High Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented. Metric 8: System Type and Design Medium There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route. Domain 5: Outcome Assessment High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Metric 12: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Domain 6: Confounding/Variable Control Metric 12: Test Substance Purity High Metric 14: Health Outcomes Unrelated to to N/A The metric is not applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome essessment.		Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions reported but sufficient data were reported to determine that these omissions were not likely to have a substantial impact on study results.			
Metric 8:System Type and DesignMediumThere were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.Domain 4: Test Organisms Metric 9:Outcome Assessment MethodologyHighThe test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.Domain 5:Outcome Assessment Metric 10:Sampling MethodsN/AThe outcome assessment methodology addressed or reported the intended outcome(s) of interest.Domain 5:Outcome Assessment Metric 12:Test Substance IdentityHighThe outcome assessment methodology addressed or reported the intended outcome(s) of interest.Domain 6:Confounding/Variable Control Metric 13:Confounding VariablesHighSources of variability and uncertainty in the measurements, and statistical techniques are budy groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.Metric 14:Health Outcomes Unrelated to EvaneuraeN/AThe metric is not applicable to this study type.		Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups (i.e., same exposure method and timing, comparable particle size characteristics). The conditions of the exposure were documented.			
Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route. Metric 10: Sampling Methods N/A The metric is not applicable to this study type. Domain 5: Outcome Assessment Metric 11: Test Substance Identity High Metric 12: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.		Metric 8:	System Type and Design	Medium	There were some omissions in system type and design; however, the omissions were not likely to have a substantial impact on study results.			
Metric 9:Outcome Assessment MethodologyHighThe test organism information or inoculum source were reported and the test organism, species, or inoculum are routilely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route.Metric 10:Sampling MethodsN/AThe metric is not applicable to this study type.Domain 5: Outcome Assessment Metric 11:Test Substance IdentityHighThe outcome assessment methodology addressed or reported the intended outcome(s) of interest.Metric 12:Test Substance PurityHighThe 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 ana- lyzed.Domain 6: Confounding/Variable Control Metric 13:Confounding VariablesHighSources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.Metric 14:Health Outcomes Unrelated to EvanosumeN/AThe metric is not applicable to this study type.	Domain 4: Test Organis	sms						
Metric 10: Sampling Methods N/A The metric is not applicable to this study type. Domain 5: Outcome Assessment Metric 11: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Metric 12: Test Substance Purity High The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.	C	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported and the test organism, species, or inoculum are routinely used for similar study types and appropriate (e.g., aerobic microorganisms used for anaerobic biodegradation study) for the study method or route			
Domain 5: Outcome Assessment Metric 11: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Metric 12: Test Substance Purity High The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to 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 outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.			· · ·					
Metric 11: Test Substance Identity High The outcome assessment methodology addressed or reported the intended outcome(s) of interest. Metric 12: Test Substance Purity High The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.	Domain 5: Outcome As	sessment						
Metric 12: Test Substance Purity High The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.		Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest			
Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.		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 ana- lyzed.			
Domain 6: Confounding/Variable Control Metric 13: Confounding Variables High Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment. Metric 14: Health Outcomes Unrelated to Exposure								
Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to this study type.	Domain 6: Contounding	g/variable Control Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.			
		Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.			
Domain 7: Data Presentation and Analysis	Domain 7: Data Present	tation and Analysis						
Continued on next page			Conti	nued on next p	bage			

	continued from previous page						
Study Citation: OECD Harmonized Template: HERO ID:	Scholz, N., Die phthalate plasti Biodegradation 680132	Scholz, N., Diefenbach, R., Rademacher, I., Linnemann, D. (1997). Biodegradation of DEHP, DBP, and DINP: poorly water soluble and widely used phthalate plasticizers. Bulletin of Environmental Contamination and Toxicology 58(4):527-534. Biodegradation in Water 680132					
			EVALUATIO	Ň			
Domain		Metric	Rating	Comments			
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.			
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quality Determination High							

* Related References: Reported in PubChem HSDB.

Study Citation:	SRC, (1983). Exhi	bit I shake flask biodegradation of 14 commercial phthalate esters.				
OECD Harmonized	Biodegradation in	Water				
Template:	1216109					
IIERO ID.	1310198					
		EXTRACTION				
Parameter		Data				
CASPN and Test Material		28552 12 (), DINID				
Confidentiality EndPoint Tyr	na	20333-12-0, DINF None: ready biodegradability: Experimental: other: Non-guideline shake flask carbon diovide evolution biodegradation study				
Guideline	pe,	None, ready biodegradability, Experimental, other. Non-guideline shake hask carbon dioxide evolution biodegradation study				
Solvent, Reactivity, Storage, S	Stability	NR; NR; NR				
Radiolabel, Source, State, Pur	rity	NR; NR; NR				
Blank and Control		one blank and one glucose control; Not applicable				
Oxygen and Inoculum		aerobic; other:: soil from Berry Park, Syracuse, NY and raw, domestic, influent sewage microorganisms from Meadowbrook Limestone Treatment Plant, Favetteville, NY				
Duration, Parameter, System,	and	28 days; CO2 evolution: flasks, darkened, shaken; Days 2, 6, 9, 14, 21, 28				
Sampling Frequency						
pH Adjusted and pH		Not Reported; 7 ± 0.2				
Concentration		See other field				
Composition and Test Temper	rature	Mineral salts media; 22±2°C				
CEC, Water Aeration Dilution ness, and Other Design	n, Continuous Dark-	Not reported; aerated distilled water; yes; Test substance concentration was the equivalent to 4 mg carbon at the start of acclimation				
Results Details Method, Results	lts per Degradation	GC-FID; % primary biodegradation; Not Reported				
Direct Quantum Yield Results	s					
Results Value, Results Stand	ard Deviation, Re-	>99% in 28 days; raw data, averages, and S.D. reported; 28 days; t1/2=3.38 days				
sults Sample Time, and Resu	ilts Reference Sub-					
stance Compartments						
Results Remarks and Results	Details	Primary biodegradation in 28 days; Degradation still occurring after 28 days for some study replicates (that were less than 99% on day 28)				
Results Mean Total Recovery	and Results per Re-	90-94; Not applicable				
covery						

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

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Study Citation: OECD Harmonized Template:	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters. Biodegradation in Water						
HERO ID:	1316198						
		I	EVALUATIO	N			
Domain		Metric	Rating	Comments			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.			
	Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.			
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.			
	Metric 8:	System Type and Design	High	The system type and design were appropriate.			
Domain 4: Test Organis	ms						
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.			
Domain 5: Outcome As	sessment						
Domain 5. Outcome ris	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.			
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.			
Domain 6: Confounding	Wariable Control						
Domain 0. Comountuing	Metric 13.	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques			
	weute 15.	confounding variables	Ingn	and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.			
Domain 7: Data Present	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process			
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.			
Domain & Other							
Domain 8: Other	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.			
	Metric 18.	Results OSAR Models	N/A	The metric is not applicable to this review article			
		20	1 1/1 1				
Overall Qualit	ty Determina	ation	High				

* Related References: Study related to HERO ID 679791, 1316206 and 5348362

Study Citation:	SRC, (1983). Exhi	bit I shake flask biodegradation of 14 commercial phthalate esters.			
OECD Harmonized	Biodegradation in	Water			
HERO ID:	1316198				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0; DINP			
Confidentiality, EndPoint, T	Гуре,	None; Ultimate biodegradation; Experimental; other: Non-guideline shake flask carbon dioxide evolution biodegradation study			
Guideline Solvent, Reactivity, Storage	e, Stability	NR; NR; NR			
Radiolabel, Source, State, H	Purity	NR; NR; NR			
Blank and Control	-	one blank and one glucose control; Not applicable			
Oxygen and Inoculum		aerobic; other:: soil from Berry Park, Syracuse, NY and raw, domestic, influent sewage microorganisms from Meadowbrook Limestone Treatment Plant, Fayetteville, NY			
Duration, Parameter, Syster Sampling Frequency	m, and	28 days; CO2 evolution: flasks, darkened, shaken; Days 2, 6, 9, 14, 21, 28			
pH Adjusted and pH		Not Reported; 7 ± 0.2			
Concentration		See other field			
Composition and Test Temp	perature	Mineral salts media; 22±2°C			
CEC, Water Aeration Diluti ness, and Other Design	on, Continuous Dark-	Not reported; aerated distilled water; yes; Test substance concentration was the equivalent to 4 mg carbon at the start of acclimation			
Results Details Method, Re Parameter, and Direct Operature Viold Page	esults per Degradation	GC-FID; % Theoretical CO2 evolution; Not Reported			
Results Value, Results Sta sults Sample Time, and Re stance Compartments	ndard Deviation, Re- esults Reference Sub-	61.5% in 28 days (average, S.D. 1.6); raw data, averages, and S.D. reported; 28 days; t1/2=3.38 days			
Results Remarks and Resul Results Mean Total Recover covery	lts Details ry and Results per Re-	Primary biodegradation in 28 days; Degradation still occurring after 28 days for some study replicates (that were less than 99% on day 28) 90-94; Not applicable			

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

		contin	ued from prev	vious page			
Study Citation:	SRC, (1983). Exhi	SRC, (1983). Exhibit I shake flask biodegradation of 14 commercial phthalate esters.					
OECD Harmonized	Biodegradation in	water					
HFRO ID.	1316198						
	1510170						
D .			EVALUATIO	N			
Domain	N	Metric	Rating	Comments			
	Metric /:	Testing Consistency System Type and Design	High	Test conditions were consistent across samples or study groups.			
	Metric 8:	System Type and Design	High	The system type and design were appropriate.			
Domain 4: Test Organis	ms						
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.			
Domain 5: Outcome As	sessment		TT: 1				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.			
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.			
Domain 6: Confounding	v/Variable Control						
Domain o. Contouriant	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	reported variability or uncertainty was not likely to influence the outcome assessment. The metric is not applicable to this review article.			
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disap- pearance was not likely due to some other process.			
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.			
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this review article.			
Overall Qualit	ty Determina	ation	High				

 * Related References: Study related to HERO ID 679791, 1316206 and 5348362

Study Citation:	SRC, (1984). Activ	vated sludge biodegradation of 12 commercial phthalate esters contract No. PE-17.0-ET-SRC.				
OECD Harmonized	Biodegradation in Water					
Template:						
HERO ID:	1316206					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0: DINP				
Confidentiality, EndPoint,	Type,	None; inherent biodegradability; Experimental; other: Non-guideline; 19 day die away test				
Guideline						
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR				
Radiolabel, Source, State, I	Purity	NR; NR; NR				
Blank and Control		blank and diethylene glycol control; Not reported				
Oxygen and Inoculum		aerobic; activated sludge, adapted: mixed culture from a SCAS procedure				
Duration, Parameter, Syster	m, and	19 days; test mat.: SCAS unit; 0, 1, 2, 3, 4, 5, 9, 12, 15 and 19 days				
pH Adjusted and pH		Not Reported: Not reported				
Concentration		1 - 3 mg/L				
Composition and Test Tem	perature	Mineral nutrient solution: 23°C				
CEC. Water Aeration Diluti	ion Continuous Dark-	Not reported: Aerated tap water: Not reported: Not applicable				
ness, and Other Design	ion, commuous Duin					
Results Details Method, Re	esults per Degradation	GC-ECD; half-life; Not Reported				
Parameter, and						
Direct Quantum Yield Resu	ults					
Results Value, Results Standard Deviation, Re-		1.5 days (average; 1-1.9 days); 0.45 days; 19 days; 69% DOC removal (average, range from 66 to 71%).				
stance Compartments	esuns Reference Sub-					
Results Remarks and Resul	lts Details	Not applicable; k=0.37-0.68 days^-1				
Results Mean Total Recove	ry and Results per Re-	Not applicable; 77-101%				
covery	-					
		EVALUATION				

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

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Study Citation: OECD Harmonized	SRC, (1984). Acti Biodegradation in	vated sludge biodegradation of 12 comme Water	ercial phthalat	e esters contract No. PE-17.0-ET-SRC.
HERO ID:	1316206			
		E	VALUATIO	N
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The conditions of the exposure were documented.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organis	sms			
en e	Metric 9:	Outcome Assessment Methodology	High	The inoculum sources were reported and is routinely used for similar study types and appropriate for the study method.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this review article.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted approaches for the chemical and media being analyzed.
Domain 6: Confounding	g/Variable Control			
2 onian of Comouncaria	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all
				reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this review article.
Domain 7. Data Present	tation and Analysis			
2011111 / 2011 10001	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
Domain 6. Outer	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this review article.
Overall Qualit	ty Determina	ation	High	

* Related References: Study related to HERO ID 679791, 1316198 and 5348362

Study Citation:	U.S. EPA, (2019).	U.S. EPA, (2019). Manufacturer request for risk evaluation: Diisononyl phthalate (DINP).					
OECD Harmonized	Biodegradation in	Biodegradation in Water					
Template:							
HERO ID:	7325467						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		28553-12-0 and 68515-48-0; DINP					
Confidentiality, EndPoint, T	ype,	None; aerobic primary biodegradability; experimental; other: not specified					
Guideline Solvent, Reactivity, Storage	, Stability	NR; NR; NR					
Radiolabel, Source, State, P	urity	NR; NR; NR Notes: NR					
Blank and Control		not reported; not reported					
Oxygen and Inoculum		aerobic; Not Reported: not reported					
Duration, Parameter, System	n, and	28 days; test mat.: not reported; not reported					
pH Adjusted and pH		not reported: not reported					
Concentration		not reported, not reported - not reported not reported not reported					
Composition and Test Temp	berature	not reported; not reported					
CEC, Water Aeration Dilution	on, Continuous Dark-	not reported; not reported; not reported; not reported					
ness, and Other Design							
Results Details Method, Res	sults per Degradation	not reported; test material removal; not reported					
Direct Quantum Yield Results							
Results Value, Results Standard Deviation, Re-		90-100%; not reported; 5-28 days; not reported					
sults Sample Time, and Results Reference Sub-							
stance Compartments							
Results Remarks and Result	ts Details	68% primary degradation after 1 day; not reported					
covery	y and Kesults per Re-	noi reportea; noi reportea					

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	Metric 1:	Test Substance Identity	Medium	The test substance was identified by acronym.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, details may be in primary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported; however, details may be in primary source.

		cont	inued from previous	page
Study Citation: OECD Harmonized	U.S. EPA, (2019). Biodegradation in	Manufacturer request for risk evaluation Water	on: Diisononyl phthala	ate (DINP).
HERO ID:	7325467			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported; however, details may be in primary source.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5. Outcome As				
Domain 5. Outcome As	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported; however, details may be in primary
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported; however, details may be in primary source.
Domain 6: Confounding	Wariable Control			
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported; however, details may be in primary
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported; however, details may be in primary source
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported; however, details may be in 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, the source citation was provided.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quali	ty Determina	ation	Medium	

* Related References: Source cited: HERO ID 3688004

Study Citation: OECD Harmonized	U.S. EPA, (2019). Manufacturer request for risk evaluation: Diisononyl phthalate (DINP). Biodegradation in Water				
Template: HERO ID:	7325467				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0 and 68515-48-0; DINP			
Confidentiality, EndPoint, Typ Guideline	pe,	None; other; not specified; other: not specified			
Solvent, Reactivity, Storage, S	Stability	NR; NR; NR			
Radiolabel, Source, State, Pur	rity	NR; NR; NR Notes: NR			
Blank and Control		not reported; not reported			
Oxygen and Inoculum		aerobic; Not Reported: not reported			
Duration, Parameter, System, Sampling Frequency	and	not reported; not reported; not reported; not reported			
pH Adjusted and pH		not reported; not reported			
Concentration		not reported not reported not reported not reported			
Composition and Test Temper	rature	not reported; not reported			
CEC, Water Aeration Dilution	, Continuous Dark-	not reported; not reported; not reported			
Results Details Method, Resu Parameter, and Direct Quantum Vield Results	lts per Degradation	not reported; half-life; not reported			
Results Value, Results Stand sults Sample Time, and Resu stance Compartments	ard Deviation, Re- lts Reference Sub-	50%; not reported; 7-40 days; not reported			
Results Remarks and Results	Details	Half-life estimated as 7-40 days under aerobic aqueous conditions.; not reported			
Results Mean Total Recovery and Results per Re- covery		not reported; not reported			

			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 1: Test Substan	nce					
	Metric 1:	Test Substance Identity	Medium	The test substance was identified by acronym.		
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, details may be in primary source.		
Domain 2: Test Design						
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported; however, details may be in primary source.		
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported; however, details may be in primary source.		
Domain 3: Test Condit	ions					
		(Continued on next page			

		contin	nued from previous	page
Study Citation: OECD Harmonized	U.S. EPA, (2019 Biodegradation	9). Manufacturer request for risk evaluatior in Water	n: Diisononyl phthal	ate (DINP).
HERO ID:	7325467			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported; however, details may be in primary source.
Domain 4: Test Organi	sms			
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome A	aaaamant			
Domain 5. Outcome A	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported; however, details may be in primary source.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported; however, details may be in primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7. Data Preser	tation and Analysis	c.		
Domain 7. Data Presen	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported; however, details may be in primary source
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported; however, details may be in 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, the source citation was provided.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quali	ity Determi	nation	Medium	

* Related References: Source cited: HERO ID 3688004

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Study Citation: Eji	Ejlertsson, J., Johansson, E., Karlsson, A., Meyerson, U., Svensson, B. H. (1996). Anaerobic degradation of xenobiotics by organisms form municipal solid wate under landfilling conditions. Antonia van Leeuwenhoek 69(1):67-74					
OECD Harmonized Bi	Sediment					
Template:						
HERO ID: 13	1315944					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; DNP				
Confidentiality, EndPoint, Type,	,	None; screening test; Experimental; other: municipal solid waste anaerobic microflora				
Guideline Solvent Reactivity Storage Sta	bility	NP · NP · NP				
Radiolabel Source State Purity	v v	NK, NK, NK NR• MFRCK• NR• NR				
Oxygen and Inoculum	,	anaerobic; anaerobic microorganisms				
Duration, Parameter, System, an	nd	100 days; test mat.; Experimental bottles (118 ml); every 10 days				
Sampling Frequency						
Results Sample Time, Compa	artment, Sludge	0, 3, 9 and 10 day interval; liquid sampled; Milled Municipal Sewage Waste with a particle size of approximately 1 cm; aqueous phosphate buffer;				
Compartment, Water		Not reported; mineral medium=pH /				
Control Dark, Control, and Blan	ık	Not reported; Not reported; Yes, check for methane production from waste material in the inoculum				
Concentration		50 mgC/L				
Analytical Method, Analytical	Details, and Re-	- GC for methane and GC-MS for test substance detection; Not Reported; 1				
sults Per Degredation Parameter	•					
Results Remarks	1 5 4	not transformed				
Halflife, Standard Deviation Results, Reference		Not applicable; Not reported; Not reported; Not reported				
Compartment Results	rence substance					
Results Details		Not reported				
Mean Total Recovery Results and	d Results Per Re-	Not reported; Not reported				
covery						
Results Value, Direct Quantum Yield Results, and Transformation Products		0%; Not Reported; Not applicable				

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

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		continu	ied from pre	vious page				
Study Citation:	Ejlertsson, J., Joh solid waste under	Ejlertsson, J., Johansson, E., Karlsson, A., Meyerson, U., Svensson, B. H. (1996). Anaerobic degradation of xenobiotics by organisms form municipal solid waste under landfilling conditions. Antonie van Leeuwenhoek 69(1):67-74.						
OECD Harmonized	Biodegradation in	Biodegradation in Sediment						
Template:								
HERO ID:	1315944							
		H	EVALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 5:	Test Method Suitability	Medium	Some details were omitted.				
	Metric 6:	Testing Conditions	High	Test conditions were consistent across samples or study groups.				
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.				
	Metric 8:	System Type and Design	High	The system type was appropriate.				
Domain 4. Tost Organia								
Domain 4: Test Organis	Matria O:	Outcome Assessment Methodology	Uiah	The test area ison course was reported and appropriate for the study type				
	Metric 10:	Sampling Methods	N/A	The test organism source was reported and appropriate for the study type.				
	Wieure 10.	Sampling Methods	IN/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used accepted methods for the chemical and media being analyzed.				
Domain & Confounding	Wariahla Control							
Domain 6: Confounding	g/ variable Control Metric 13:	Confounding Variables	High	All reported variability or upportainty was not likely to influence the outgome assess				
	Wieute 15.	Confounding variables	Ingn	ment.				
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.				
		Exposure						
Domain 7: Data Present	tation and Analysis							
Domain 7. Data Present	Metric 15:	Data Reporting	Medium	Extraction efficiency and recovery were not reported				
	Metric 16:	Statistical Methods and	Medium	Statistical and kinetic calculations were not described in detail				
	Wieule 10.	Kinetic Calculations	Wiedrum	statistical and know calculations were not deserved in detail.				
Domain & Other								
Domain 6. Other	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.				
		Results	111511					
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Quali	ty Determin	ation	High					

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Study Citation: OECD Harmonized	ExxonMobil, (201 Diisononyl phthala Biodegradation in	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Disononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD. Biodegradation in Sediment				
HERO ID:	2079252					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0; di-isononyl phthalate				
Confidentiality, EndPoint, 7	Гуре,	no; other; experimental; other: degradation in soil				
Solvent, Reactivity, Storage	e. Stability	NR: NR: NR				
Radiolabel, Source, State, F	Purity	NR: NR: NR Notes: mono-isononyl phthalate				
Oxygen and Inoculum	-	aerobic; not specified: marine sediment				
Duration, Parameter, Syster	n, and	not reported; not specified; not reported; not reported				
Sampling Frequency						
Compartment Water	ompartment, Sludge	not reported, not reported, not appreade, not reported, not reported				
Compartment, CEC, and pH	ł					
Control Dark, Control, and	Blank	Not Reported; not reported; not reported				
Concentration		Not Reported				
Analytical Method, Analyt	ical Details, and Re-	not reported; not reported; not reported				
Results Remarks	lieter	Not Reported				
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance		23 hours; not reported; not reported; Not Reported				
Compartment Results	Substance					
Results Details		not reported				
Mean Total Recovery Resul	ts and Results Per Re-	not reported; not reported				
covery Results Value, Direct Qua and Transformation Produc	antum Yield Results, ts	not reported; not reported; Not Reported				

			EVALUATION	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substan	ce					
	Metric 1:	Test Substance Identity	Medium	The test substance was the mono ester of the test substance.		
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.		
Domain 2: Test Design						
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.		
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.		
Domain 3: Test Conditions						

		contin	ued from pre-	vious page				
Study Citation: OECD Harmonized	ExxonMobil, (20 Diisononyl phthal Biodegradation in	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.						
Template:	Diodegradation	Seament						
HERO ID:	2079252							
			EVALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 5:	Test Method Suitability	N/A	The test method information was not reported.				
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported.				
	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 Organis	ms							
	Metric 9:	Outcome Assessment Methodology	Low	The test organism, species, or inoculum source were not reported; however, a standard method was used.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differ- ences or absence of details were not likely to be severe or have a substantial impact on the study results.				
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results				
Domain 6: Confounding	g/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 Present	tation and Analysis							
	Metric 15:	Data Reporting	Low	There was insufficient data reported.				
	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	Medium	The study results were reasonable.				
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Qualit	ty Determin	ation	Low					

Study Citation:	HSDB, (2015). Di	isononyl phthalate (CASRN: 28553-12-0).			
OECD Harmonized	Biodegradation in	Sediment			
Template:					
HERO ID: 2356022					
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Reported			
Confidentiality, EndPoint, Type,		Not Reported; Not Reported; Not Reported; Not Reported			
Guideline Solvent Reactivity Storage Stability		Not Reported: Not Reported: Not Reported: Not Reported			
Radiolabel, Source, State, Purity		Not Reported, Not Reported, Not Reported. Not Reported			
Oxygen and Inoculum		Not Reported; natural water / sediment: freshwater			
Duration, Parameter, Syster	n, and	28 days; Not Reported; Not Reported; Not Reported			
Sampling Frequency					
Results Sample Time, C	ompartment, Sludge	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported; Not Reported			
Compartment, Water	1				
Control Dark, Control, and	Blank	Not Reported: Not Reported: Not Reported			
Concentration		0.02 ppm - 10 ppm mg/L			
Analytical Method, Analytical Details, and Re-		Not Reported; Not Reported			
sults Per Degredation Parar	gredation Parameter				
Results Remarks		Not Reported			
Halflife, Standard Deviatio	on Results, Reference	Not Reported; Not Reported; Not Reported			
Compartment Results	Reference Substance				
Results Details		Not Reported			
Mean Total Recovery Resul	ts and Results Per Re-	Not Reported; Not Reported			
covery					
Results Value, Direct Qua	antum Yield Results,	At 10 ppm: <1%; At 0.02 ppm: 8%; Not Reported; Not Reported			
and Transformation Produc	15				

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ice			
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported in the secondary source.
Domain 2. Test Design				
Domain 21 Test Design	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance stability, homogeneity, preparation or storage condi- tions were not reported in the secondary source.

Domain 3: Test Conditions

		continue	d from previous	page
Study Citation: OECD Harmonized Template:	HSDB, (2015). D Biodegradation in	iisononyl phthalate (CASRN: 28553-12-0). a Sediment		
HERO ID:	2356022			
		EV	ALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details regarding the test method were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Test conditions were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Test conditions across sample groups were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organis	sms			
C	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding the inoculum type were not reported in the secondary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported in the secondary source.
Domain 6: Confounding	v/Variable Control			
2 official of Confounding	Metric 13:	Confounding Variables	N/A	Sources of variability were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type.
		Exposure		
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	Medium	The analytical method was not reported in the secondary source.
	Metric 16:	Statistical Methods and	Medium	Kinetic calculations were not reported in the secondary source.
		Kinetic Calculations		
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 Quali	ty Determin	ation	Medium	

* Related References: Johnson BT et al; Environ Pollut Ser B 8: 101-18 (1984).

Study Citation:	Johnson, B. T., He	eitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in
OECD Harmonized	freshwater sedimer Biodegradation in S	nts with attachments. Sediment
HERO ID:	1325551	
		EXTRACTION
Parameter		Data
CASRN and Test Material		28553-12-0; DINP
Confidentiality, EndPoint, T Guideline	ype,	None; screening test; Experimental; other: Aerobic biodegradation study in sediment
Solvent, Reactivity, Storage	, Stability	NR; NR; NR
Radiolabel, Source, State, P	urity	carbonyl-14C and ring labeled di-isononyl phthalate, 9.59 mCi/mM for both; Exxon Research and Engineering, Linden, NJ; NR; >99%
Oxygen and Inoculum		aerobic; natural water / sediment: freshwater: Little Dixie Lake, an agricultural watershed 16 km east of Columbia, Missouri. Sediment collected
Duration, Parameter, Systen Sampling Frequency	n, and	form the littoral zone. 14 days and 28 days; 14CO2 evolved; sealed flask, incubated; semi-weekly
Results Sample Time, Co Compartment, Water	ompartment, Sludge	14 and 28 days; sediment and water; Little Dixie Lake sediment, pre-exposed to test substance for 28 days; Little Dixie Lake water; Not reported; Not reported
Control Dark Control and	ı Blank	ves: Not applicable: Pentone and glucose controls untreated and carrier-solvent treated sediments
Concentration	Dium	19.7 ug/l.
Analytical Method, Analyti sults Per Degredation Param	ical Details, and Re-	Beckman LS-230 liquid scintillation counter; Not Reported; 2
Results Remarks		primary biodegradation
Halflife, Standard Deviation Substance Results, and F Compartment Results	n Results, Reference Reference Substance	Not reported; \pm 0.04 and \pm 0.10; Not reported; Not reported
Results Details		Not reported
Mean Total Recovery Result covery	ts and Results Per Re-	Not applicable; Not applicable
Results Value, Direct Qua and Transformation Product	ntum Yield Results,	0.54% in 14 days and 1.11% in 28 days; Not Reported; Not reported

			EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substa	nce					
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.		
	Metric 2:	Test Substance Purity	High	The test substance purity, radiolabel location and source were reported.		
Domain 2: Test Design	ı					
2 cinani 21 1000 2 congi	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.		
		conti	nued from pre	vious page		
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Study Citation:	Johnson, B. T., H freshwater sedime	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in freshwater sediments with attachments.				
OECD Harmonized	Biodegradation in Sediment					
Template:						
HERO ID:	1325551					
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 3: Test Condition	ons					
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.		
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.		
Domain 4: Test Organis	sms					
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.		
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.		
Domain 5: Outcome As	sessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed and reported the intended outcome of interest.		
	Metric 12:	Test Substance Purity	Medium	Some sampling details were not reported but their omission was not likely to impact the study results.		
Domain 6: Confounding	g/Variable Control					
· · · · ·	Metric 13:	Confounding Variables	High	No confounding variables between study groups were noted.		
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.		
Domain 7: Data Present	tation and Analysis					
	Metric 15:	Data Reporting	Medium	Some data were not reported such as percent recovery, but the omissions were not likely to impact the study results.		
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some calculation details were not reported but their omission was not likely to impact the study results.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.		
Overall Quali	ty Determin	ation	High			
_	-					

Domain 3: Test Conditions

Metric 5:

Study Citation:	Johnson, B. T., H	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1983). Environmental and chemical factors influencing the biodegradation of phthalic acid esters in					
OECD Harmonized	freshwater sedimer Biodegradation in	nts with attachments. Sediment					
Template: HERO ID:	1325551						
			EXTRACTIO	N			
Parameter		Data					
CASRN and Test Material		28553-12-0; DINP					
Confidentiality, EndPoint, T	ype,	None; screening test; Experimental; oth	er: Aerobic biodegr	adation study in sediment			
Solvent, Reactivity, Storage,	Stability	NR; NR; NR; NR					
Radiolabel, Source, State, Pu	urity	carbonyl-14C labeled di-isononyl phtha	late, 9.59 mCi/mM;	Exxon Research and Engineering, Linden, NJ; NR; >99%			
Oxygen and Inoculum		anaerobic; natural water / sediment: fres	hwater: Little Dixie	Lake, an agricultural watershed 16 km east of Columbia, Missouri. Sediment collected			
Duration, Parameter, System	a, and	form the littoral zone. 28 days; radiochem. meas.; sealed flask	, incubated; semi-w	eekly			
Results Sample Time, Co Compartment, Water	ompartment, Sludge	28 days; sediment and water; Little Dixie Lake sediment, pre-exposed to test substance for 28 days; Little Dixie Lake water; Not reported; Not reported					
Compartment, CEC, and pH	1 1	visu Not amplicable. Deptons and alvassa controls, untrooted and conviou columnt trooted addiments					
Control Dark, Control, and F	Slank	Not reported					
Analytical Method Analytic	cal Details and Pe	Reckman I S-230 liquid scintillation counter: Not Reported: 2					
sults Per Degredation Param	eter	berkindi Es 250 inquit seminaton counter, not reported, 2					
Results Remarks		ultimate biodegradation; methanogenesisin anaerobic sediments was not included. The effect of temperature and test substance concentrations was also investigated					
Halflife, Standard Deviation Substance Results, and R	n Results, Reference deference Substance	Not reported; Not reported; Not reported; Not reported					
Results Details		Not reported					
Mean Total Recovery Result	s and Results Per Re-	Not applicable; Not applicable					
covery							
Results Value, Direct Quan and Transformation Products	ntum Yield Results, s	<1% in 28 days under anaerobic condit	ions; Not Reported;	Not reported			
			EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 1: Test Substanc	e						
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.			
	Metric 2:	Test Substance Purity	High	The test substance purity, radiolabel location and source were reported.			
Domain 2: Test Design	Matria 2.	Starlar Control	TT: -1				
	Metric A:	Suudy Collitols Test Substance Stability	пign High	This metric met the criteria for high confidence as expected for this type of study.			

Test Method Suitability High This metric met the criteria for high confidence as expected for this type of study.

continued from previous page					
Study Citation:	Johnson, B. T., H freshwater sedime	leitkamp, M. A., Jones, J. R. (1983). nts with attachments.	Environmental	and chemical factors influencing the biodegradation of phthalic acid esters in	
Tomplete:	Diodegradation in	Sediment			
HERO ID:	1325551				
			EVALUATIO	N	
Domain		Metric	Rating	Comments	
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.	
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.	
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.	
Domain 1. Test Organis	me				
Domani 4. Test Organis	Metric 9.	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported	
	Metric 10.	Sampling Methods	N/A	The metric is not applicable to this study type	
	Methe 10.	Sampling Methods	10/1	The metric is not applicable to this study type.	
Domain 5: Outcome Ass	sessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed and reported the intended outcome of interest.	
	Metric 12:	Test Substance Purity	Medium	Some sampling details were not reported but their omission was not likely to impact the study results.	
Domain 6: Confounding	Variable Control				
Domain 0. Comounding	Metric 13	Confounding Variables	High	No confounding variables between study groups were noted	
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type	
	Metrie 11.	Exposure	1.071		
Domain 7: Data Present	ation and Analysis				
Domain 7. Data Present	Metric 15:	Data Reporting	Low	Some data were not reported such as percent recovery, but the omissions were not likely to impact the study results.	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some calculation details were not reported but their omission was not likely to impact the study results.	
Domain 8: Other	Matria 17	Varification on Dlaught liter of	TT: _1-		
	Meuric 17:	Populta	High	The study results were reasonable.	
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.	
Overall Qualit	ty Determina	ation	High		

Study Citation:	Johnson, B. T., H	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in						
OECD Harmonized	Biodegradation in	Biodegradation in Sediment						
HERO ID:	679999							
		EXTRACTION						
Parameter		Data						
CASRN and Test Material		28553-12-0; Di-isononyl phthalate						
Confidentiality, EndPoint, 7	Гуре,	None; other; Experimental; other: Biodegradation in Freshwater Sediments under static (aerobic) and flow through conditions (aerobic)						
Guideline Solvent Reactivity Storage	Stability	Acetone: NR · NR · NR						
Radiolabel, Source, State, F	Purity	carbonyl-[14C] labelled di-isononyl phthalate; specific activity 9.59 mCi/mM; Exxon Research and Engineering,Linden, New Jersey; NR; >99% by gas-liquid and thin-layer chromatography						
Oxygen and Inoculum		aerobic; natural water / sediment: freshwater: Sediment and water taken from Little Dixie Lake, located in an agricultural watershed east of Columbia, Missouri; sediments were pre-exposed for 28 days prior to incubation period of study						
Duration, Parameter, Syster Sampling Frequency	m, and	28 days; radiochem. meas.; Erlenmeyer flask (static) or reaction beaker (flow-through) sealed with rubber stopper; periodically						
Results Sample Time, Compartment, Sludge Compartment, Water		days 3, 7, 21, and 28; labelled CO2 was trapped; total organic carbon 8.0±0.7%; Not reported; Not reported; sediment pH 7.6±0.2						
Control Dark, Control, and	Blank	yes; Not reported; controls consisted of untreated sediments and solvent (acetone) treated sediments						
Concentration		0.0197 - 10 μg/L						
Analytical Method, Analyt sults Per Degredation Paran	tical Details, and Re- neter	liquid scintillation counter; Not reported; 6						
Results Remarks		Primary biodegradation at 10.0 mg/L: 1.58±0.01%/28days, at 1.97 mg/L: 1.15±0.08%/28days, at 0.197 mg/L: 1.30±0.03%/28days, at 0.0197 mg/L: 1.46±0.20%/28days						
Halflife, Standard Deviatio Substance Results, and I Compartment Results	on Results, Reference Reference Substance	Not reported; \pm SD; Not reported; Not reported						
Results Details		Not reported						
Mean Total Recovery Resul	ts and Results Per Re-	Not reported; Note: methanogenesis in anaerobic sediments may result in losses of CO2, this was noted but not accounted for in the results; results						
Results Value, Direct Qua and Transformation Produc	antum Yield Results, ts	Primary biodegradation (19.7 μ g/L) under aerobic conditions: 0.54 \pm 0.04%/14days, 1.11 \pm 0.10%/28days; Not Reported; Not reported						

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substand	ce				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.	
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Low	Study controls were not well defined. Abiotic controls were not included.	
Continued on next page					

		continu	ued from pre	vious page				
Study Citation:	Johnson, B. T., F freshwater sedime	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.						
OECD Harmonized	Biodegradation in Sediment							
Template:	(70000							
HERO ID:	6/9999							
		I	EVALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	Medium	Limited detail regarding this metric.				
Domain 2. Test Conditi								
Domain 5: Test Conditio	Metric 5:	Test Method Suitability	Medium	The test methods were suitable				
	Metric 6:	Testing Conditions	High	Testing conditions were reported				
	Metric 7:	Testing Consistency	High	Testing conditions were consistent				
	Metric 8:	System Type and Design	High	The system type and design were appropriate.				
Domain 4: Test Organis	ms							
	Metric 9:	Outcome Assessment Methodology	Low	Limited detail on microbial activity. Soil was pre-exposed to the test material.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.				
	Metric 12:	Test Substance Purity	Low	Sampling methods were not reported.				
Domain 6: Confounding	v/Variable Control							
Domain of Contouriding	Metric 13:	Confounding Variables	Low	Abiotic loss was not accounted for or discussed				
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric is not applicable to this type of study.				
		Exposure						
		•						
Domain 7: Data Present	ation and Analysis							
	Metric 15:	Data Reporting	Low	Limited analytical detail; mass balance and recovery not reported; clear results based				
				on flow-though and static conditions not apparent. Primary degradation was reported;				
	Matric 16	Statistical Methods and	High	Statistical matheds were appropriate				
	Methe 10.	Kinetic Calculations	Ingn	Statistical methods were appropriate.				
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	Low	Limited data reporting and lack of appropriate controls are serious flaws.				
	Metric 18.	Results OSAR Models	N/A	The metric is not applicable to this study type				
		201 IL HOUSE	1 1/ 1 1					
Overall Ouali	ty Determin	ation	Low					
Yuun	- <u>j</u> =							

* Related References: HSDB

Study Citation:	Johnson, B. T., He	eitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in				
OECD Harmonized	Treshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118. Biodegradation in Sediment					
Template:						
HERO ID:	679999					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; Diisononyl phthalate				
Confidentiality, EndPoint, T Guideline	ype,	None; ready biodegradability; Experimental; other: Biodegradation in freshwater sediment from Little Dixie Lake, Missouri.				
Solvent, Reactivity, Storage	, Stability	Acetone carrier solvent; NR; NR; NR				
Radiolabel, Source, State, P	urity	Carbonyl-14C (9.59 mCi mM-1); Exxon Research and Engineering, Linden, New Jersey; NR; >99% by gas-liquid and thin-layer chromatography				
Oxygen and Inoculum		aerobic; natural water / sediment: freshwater: Sediment and water samples were collected from Little Dixie Lake, Missouri.				
Duration, Parameter, Systen Sampling Frequency	n, and	28 days; radiochem. meas.; 250mL flask with 100mL water and sediment (9:1 wt:wt).; Days 3, 7, 14, 21, 28				
Results Sample Time, Co Compartment, Water Compartment, CEC, and pH	ompartment, Sludge	Not reported; Not reported; Not reported; Not reported; 7.6 ± 0.4				
Control Dark, Control, and	Blank	yes; Not reported; Not reported				
Concentration		19.7 µg/L				
Analytical Method, Analyti sults Per Degredation Param	ical Details, and Re- neter	Static and flow-through respirometers were used with Liquid Scintillation counting; Beckman LS-230 LSC; 6				
Results Remarks		After 4 weeks, DINP primary biodegradation at 12, 22, and 28°C was approximately 0.7, 1.2, and 2.2%, respectively. Initial concentrations of 0.0197, 0.197, 1.97, and 10.0 mg/L DEHP were tested and after 28 days at 22°C, only the trial at 10.0 mg/L produced a significantly different final biodegradation % than the other three (ANOVA, $P = < 0.05$).				
Halflife, Standard Deviation Substance Results, and F Compartment Results	n Results, Reference Reference Substance	Not reported; See Value field; Not reported; Not reported				
Results Details		Not reported				
Mean Total Recovery Result covery	ts and Results Per Re-	Not reported; Not reported				
Results Value, Direct Qua and Transformation Product	ntum Yield Results,	Primary biodegradation % after 14 days: 0.54±0.04; 28 days: 1.11±0.10.; Not Reported; Not Reported				

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

		continu	ued from pre	vious page				
Study Citation:	Johnson, B. T., freshwater sedin	Johnson, B. T., Heitkamp, M. A., Jones, J. R. (1984). Environmental and chemical factors influencing the biodegradation of phthalic-acid esters in freshwater sediments. Environmental Pollution Series B: Chemical and Physical 8(2):101-118.						
OECD Harmonized	Biodegradation	in Sediment						
Template:	(70000							
HERO ID:	6/9999							
		I	EVALUATIO	N				
Domain		Metric	Rating	Comments				
Domain 3: Test Conditi	ions							
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test substance was tested below its aqueous solubility.				
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.				
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between the study groups.				
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.				
Domain 4: Test Organis	sms							
6	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.				
		1 0						
Domain 5: Outcome As	ssessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate and addressed the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The sampling methods and frequency were appropriate.				
Domain 6: Confoundin	g/Variable Control							
Domain 0. Comounding	Metric 13.	Confounding Variables	High	Uncertainty was reported and unlikely to impact the outcome assessment				
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type				
	incure i n	Exposure	1,71	The mean is not applicable to the study type.				
Domain 7: Data Presen	tation and Analysi	S						
	Metric 15:	Data Reporting	High	The analytical method was suitable for the detection of the test substance.				
	Metric 16:	Statistical Methods and	Medium	A statistical analysis was not reported but the omission is unlikely to have a substantial				
		Kinetic Calculations		impact on the study results.				
Domain 8: Other								
	Metric 17.	Verification or Plausibility of	High	The study results are reasonable				
	mente 17.	Results	Ingil	The study results are reasonable.				
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.				
	4	nation	TT !~l-					
Overall Quali	iy Determi	nation	нıgn					

Study Citation:	Kickham, P., Otton, S. V., Moore, M. M., Ikonomou, M. G., Gobas, F. A. P., C (2012). Relationship between biodegradation and sorption of phthalate esters and their metabolites in natural sediments. Environmental Toxicology and Chemistry 31(8):1730-1737						
OECD Harmonized	Biodegradation in Sediment						
Template:							
HERO ID:	1339546						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		28553-12-0: Di-iso-nonvl phthalate					
Confidentiality, EndPoint, Ty	pe,	None; ready biodegradability; Experimental; other: Biodegradation of DINP in marine sediment.					
Solvent, Reactivity, Storage, S	Stability	Acetonitrile (Spectro-grade distilled); NR; NR; NR					
Radiolabel, Source, State, Pur	rity	NR; Sigma-Aldrich; NR; NR					
Oxygen and Inoculum		aerobic; natural water / sediment: freshwater: The top 0.5-1.0cm of sediment from False Creek (urban marine inlet) was collected and pooled. Overlying water was also collected.					
Duration, Parameter, System, and Sampling Frequency Results Sample Time, Compartment, Sludge Compartment, Water		Incubation lasted 144 days for test samples and 96 days for controls.; test mat.; 125mL glass jars with foil lined lids. Headspace was exchanged twice per week by shaking contents at 120rpm for 5 minutes with an open lid.; Days 0, 0.5, 1, 2, 4, 8, 12, 24, 48, 96, and 144. Not reported; 30g spiked sediment and 10mL of water; Not reported; Not reported; Not reported; 8.0±0.1					
Compartment, CEC, and pH Control Dark, Control, and B	lank	yes; Sediment was autoclaved and spiked with 300µL of mercuric chloride. The same treatment was done for water samples.; Blanks were prepared in triplicate without sediment.					
Concentration	1.5.11.1.5	3 µg/g					
Analytical Method, Analytic sults Per Degredation Parame Results Remarks	al Details, and Re- eter	Low resolution gas chromatography-mass spectrometry; Monoesters were analyzed using liquid chromatography electrospray-ionization mass spectrometry.; 7 Not Reported					
Halflife, Standard Deviation Substance Results, and Re Compartment Results	Results, Reference eference Substance	t(1/2), days: 12,000; Not reported; Not reported; Not reported					
Results Details		No significant difference in DINP decrease was observed in the test sediment when compared to the control sediment.					
Mean Total Recovery Results covery	and Results Per Re-	86±8%; Not reported					
Results Value, Direct Quant and Transformation Products	tum Yield Results,	rate constant, k (day^-1): 0.00006; Not Reported; Not reported					

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

		continu	ied from pre	vious page				
Study Citation:	Kickham, P., Otton, S. V., Moore, M. M., Ikonomou, M. G., Gobas, F. A. P., C (2012). Relationship between biodegradation and sorption of phthalate esters							
OFCD Harmonized	and their metabolites in natural sediments. Environmental Toxicology and Chemistry 31(8):1730-1737.							
Template.	Diodegradation	biodegradation in Sediment						
HERO ID:	1339546							
		F	VALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	High	The test substance preparation, homogeneity, and storage conditions were reported and appropriate.				
Domain 3: Test Condition	ons							
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the target chemical was tested below its aqueous solubility.				
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.				
	Metric 7:	Testing Consistency	High	There were no reported differences between the replicates or study groups.				
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.				
Domain 4: Test Organis	ms							
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was described and appropriate for the study type.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The sampling methods were described and appropriate.				
Domain 6: Confounding	g/Variable Control							
	Metric 13:	Confounding Variables	High	Uncertainty was reported and does not influence the study results.				
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type.				
		Exposure						
Domain 7: Data Present	ation and Analysis							
2 chian / Dua Prosent	Metric 15:	Data Reporting	High	The analytical method was appropriate and sensitive enough to monitor the target chem-				
			8	ical concentration and the extraction efficiency was reported.				
	Metric 16:	Statistical Methods and	High	The kinetic calculations and statistical methods were appropriate.				
		Kinetic Calculations						
Domain 8: Other								
Domain 0. Other	Metric 17.	Verification or Plausibility of	Hioh	The results are reasonable and consistent with those obtained for other similar chemicals				
		Results	man	in the study.				
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Qualit	tv Determin	ation	High					
C ; ci un ¿uun		WWW						

Study Citation:	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.						
OECD Harmonized	Biodegradation in Sediment						
Template:	675274						
	015214						
Parameter		EXIKACIION					
CASRN and Test Material		28553-12-0; Di-isononyl phthalate					
Confidentiality, EndPoint, Ty	vpe,	None; other; Experimental; other: Non-guideline anaerobic biodegradation in natural sediment microcosms					
Solvent, Reactivity, Storage,	Stability	Acetone; NR; NR; NR					
Radiolabel, Source, State, Pu	urity	NR; Wako, Osaka; NR; Analytical grade					
Oxygen and Inoculum		anaerobic; natural sediment: freshwater: Sediment: Ue Pond, pH 6.95, 16.3°C, solid content 52.4 g/L dw. Mineral salt medium: 356 mg K2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal solution in					
Duration, Parameter, System Sampling Frequency	, and	Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days. 3 taken during the first 10 days.					
Results Sample Time, Compartment, Sludge Compartment, Water		Not reported; One compartment; Not reported; Not reported; 7.2					
Control Dark, Control, and B	Blank	yes; Not reported; Not reported					
Concentration		Not Reported					
Analytical Method, Analytical Details, and Re- sults Per Degredation Parameter		High Performance Liquid Chromatography; CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric detector. TSK ODS 80-TM; 7 Not reported					
Halflife, Standard Deviation Substance Results, and Re Compartment Results	Results, Reference eference Substance	660.1 days; Not reported; Not reported					
Results Details		Half lives calculated using $t(1/2)=ln2/k$					
Mean Total Recovery Results	s and Results Per Re-	Not reported; Not reported					
Results Value, Direct Quan and Transformation Products	ntum Yield Results, s	Not reported; Not Reported; Not Reported					

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

		continu	ued from pre	vious page				
Study Citation:	Lertsirisopon, R.,	Soda, S., Sei, K., Ike, M., Fujita, M. (2 Journal of Environmental Sciences 18(4):	2006). Biodeg	radability of four phthalic acid esters under anaerobic condition assessed using				
OECD Harmonized	Biodegradation in Sediment							
	675274							
HERO ID:	073274							
		I	EVALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	High	The test substance storage conditions and preparation methods were reported and suit- able.				
Domain 3: Test Conditi	ons							
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.				
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.				
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.				
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance con- centration.				
Domain 4: Test Organis	sms							
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	ssessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.				
Domain 6: Confoundin	g/Variable Control							
	Metric 13:	Confounding Variables	High	No confounding variables were present.				
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.				
Domain 7: Data Presen	tation and Analysis							
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.				
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and addressed the dataset.				
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.				
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Quali	ty Determina	ation	High					

Study Citation:	Lertsirisopon, R.,	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using				
OECD Harmonized	a Biodegradation in Sediment					
Template: HERO ID:	675274					
		EXTRACTION				
Parameter		Data				
CASEN and Test Material		28552 12 0. Di isononyi akthalata				
Confidentiality, EndPoint, 7	Type	None: other: Experimental: other: Non-guideline anaerobic biodegradation in natural sediment microcosms				
Guideline	-) P v ,					
Solvent, Reactivity, Storage	e, Stability	Acetone; NR; NR; NR				
Radiolabel, Source, State, I	Purity	NR; Wako, Osaka; NR; Analytical grade				
Oxygen and Inoculum		k2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal				
		solution in 1 L DI water.				
Sampling Frequency	m, and	Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days 3 taken during the first 10 days				
Results Sample Time, C	Compartment, Sludge	Not reported; One compartment; Not reported; Not reported; 7.2				
Compartment, Water						
Compartment, CEC, and pl	H	vac: Nat raported: Nat raported				
Concentration	DIAIIK	yes, Not reported				
Analytical Method, Analyt	tical Details and Re-	High Performance Liquid Chromatography: CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric				
sults Per Degredation Parar	meter	detector. TSK ODS 80-TM; 7				
Results Remarks		Not reported				
Halflife, Standard Deviation Results, Reference		347.3 days; Not reported; Not reported; Not reported				
Substance Results, and	Reference Substance					
Results Details		Half lives calculated using $t(1/2)=\ln 2/k$				
Mean Total Recovery Resul	lts and Results Per Re-	Not reported; Not reported				
covery						
Results Value, Direct Qua	antum Yield Results,	Not reported; Not Reported; Not Reported				
and Transformation Produc	215					

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

		continu	ed from pre	vious page				
Study Citation:	Lertsirisopon, R., natural sediment.	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.						
OECD Harmonized	Biodegradation in	Biodegradation in Sediment						
Template:								
HERO ID:	675274							
		E	VALUATIO	N				
Domain		Metric	Rating	Comments				
Domain 3: Test Conditi	ons							
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.				
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.				
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.				
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance con- centration.				
Domain 4: Test Organis	sms							
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	ssessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.				
Domain 6: Confounding	g/Variable Control							
Domain 0. Comounding	Metric 13.	Confounding Variables	High	No confounding variables were present				
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type				
		Exposure	1011					
Domain 7: Data Present	tation and Analysis							
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.				
	Metric 16:	Statistical Methods and	High	Kinetic calculations were reported and addressed the dataset.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.				
		Results						
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Quali	ty Determin	ation	High					

Study Citation:	Lertsirisopon, R., natural sediment	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.						
OECD Harmonized	Biodegradation in	Biodegradation in Sediment						
Template:								
HERO ID:	675274							
		EXTRACTION						
Parameter		Data						
CASRN and Test Material		28553-12-0; Di-isononyl phthalate						
Confidentiality, EndPoint, '	Туре,	None; other; Experimental; other: Non-guideline anaerobic biodegradation in natural sediment microcosms						
Solvent, Reactivity, Storage	e, Stability	Acetone; NR; NR; NR						
Radiolabel, Source, State, I	Purity	NR; Wako, Osaka; NR; Analytical grade						
Oxygen and Inoculum		anaerobic; natural sediment: freshwater: Sediment: Piano Pond 15.7°C, pH 6.47, solid content 106.6 g/L dw. Mineral salt medium: 356 mg K2HPO4, 272 mg KH2PO4, 530 mg NH4Cl, 10 mg MgCl2 6H20, 75 mg CaCl2, 20 mg FeCl2 4H20, 1.2 g NaHCO3, and 0.1mL of trace metal						
Duration, Parameter, System, and Sampling Frequency		solution in 1 L DI water. Not reported; test mat.; 25mL glass bottle containing sediment, PAE solution and 20mL salt medium.; From figures: 14 samples taken over the course of 80-85 days. 3 taken during the first 10 days.						
Results Sample Time, C Compartment, Water Compartment, CEC, and pl	Compartment, Sludge H	Not reported; One compartment; Not reported; Not reported; 7.2						
Control Dark, Control, and	Blank	yes; Not reported; Not reported						
Concentration		Not Reported						
Analytical Method, Analy sults Per Degredation Paran	tical Details, and Re- meter	High Performance Liquid Chromatography; CCPE solvent delivery pump with PX-8010 solvent controller and UV-8010 spectrophotometric detector. TSK ODS 80-TM; 7						
Halflife Standard Deviation	on Paculto Pafaranca	Not reported 372.8 days: Not reported: Not reported: Not reported						
Substance Results, and Compartment Results	Reference Substance	572.8 days, Not reported, Not reported						
Results Details		Half lives calculated using $t(1/2)=\ln 2/k$						
Mean Total Recovery Resul	lts and Results Per Re-	Not reported; Not reported						
covery								
Results Value, Direct Qua and Transformation Produc	antum Yield Results, cts	Not reported; Not Reported; Not Reported						

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

		continu	ed from pre	vious page				
Study Citation:	Lertsirisopon, R., natural sediment.	Lertsirisopon, R., Soda, S., Sei, K., Ike, M., Fujita, M. (2006). Biodegradability of four phthalic acid esters under anaerobic condition assessed using natural sediment. Journal of Environmental Sciences 18(4):793-796.						
OECD Harmonized	Biodegradation in	Biodegradation in Sediment						
Template:								
HERO ID:	675274							
		E	VALUATIO	N				
Domain		Metric	Rating	Comments				
Domain 3: Test Conditi	ons							
	Metric 5:	Test Method Suitability	High	The initial concentration of the test substance was not reported but was set below its solubility limit.				
	Metric 6:	Testing Conditions	High	Testing conditions were reported and appropriate for the study.				
	Metric 7:	Testing Consistency	High	There were no reported differences in conditions among the test groups.				
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance con- centration.				
Domain 4: Test Organis	sms							
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and characteristics were reported.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
Domain 5: Outcome As	ssessment							
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.				
	Metric 12:	Test Substance Purity	High	The exact sampling frequencies were not reported but could be estimated from a figure. The half-life was reported by the study.				
Domain 6: Confounding	g/Variable Control							
Domain 0. Comounding	Metric 13.	Confounding Variables	High	No confounding variables were present				
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type				
		Exposure						
Domain 7: Data Present	tation and Analysis							
	Metric 15:	Data Reporting	Low	The test substance concentrations and extraction recoveries were not reported which may have impacted the study results.				
	Metric 16:	Statistical Methods and	High	Kinetic calculations were reported and addressed the dataset.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.				
		Results						
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Quali	ty Determin	ation	High					

Study Citation:	ECJRC, (2003). I	European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"						
OECD Harmonized	Biodegredation in	Biodegredation in Soil						
Template:	8							
HERO ID:	679933							
		EXTRACTION						
Parameter		Data						
CASRN and Test Material		68515-48-0 and 28553-12-0; Diisononyl phthalate						
Confidentiality, EndPoint, 7 Guideline	Гуре,	None; Other; Field study; Not Reported						
Solvent, Reactivity, Storage	e, Stability	NA; NR; NR						
Radiolabel, Source, State, F	Purity	NA; Roskilde, Denmark; NA; NA						
Oxygen, pH, and CEC		NR; NR						
Test Type, Test Temperature	e, and Test Details	field trial; NR; Two 50 cm soil cores collected at each location, analyzed as 10 cm sub-sections						
Soil Type, Clay Silts and Organic Carbon, and Bulk Density		Not Reported; NR; NR						
Soil Classification, Microb midity	ial Biomass, and Hu-	NR; NR: NR						
Duration, Parameter, Syster Sampling Frequency	m, and	2 yr; Test mat.; Field study with 7 cultured soils from Roskilde, Denmark; Results from one location reported; 2 x						
Control and Blank		NA; NA						
Concentration		93 - 220 ug/kg dw						
Analytical Method, Analyt sults Per Degredation Parar	tical Details, and Re- neter	NR; Not Reported; Not Reported						
Results Remarks		No significant decreased in concentrations observed. Located was sludge amended for 25 years, changed to artificial fertilizer for 6 years prior to sampling, with cattle grazing. Results potentially due to non-homogenous distribution or further leaching from PVC particles.Depth (cm); Initial concentration (ug/kg dw); Final concentration after 2 yr (ug/kg dw0 - 10 cm; 130; 41010 - 20 cm; 220; 54020 - 30 cm; 200; 67030 - 40 cm; 96; 91040 - 50 cm; 93; 28050 - 60 cm; NR; 63						
Results Value, Standard De ple Time Results, Reference and Reference Substance C	eviation Results, Sam- ce Substance Results, compartment Results	Not Reported; Not Reported; Not Reported; Not Reported						
Results Details	*	Not Reported						
Mean Total Recovery Resul covery	ts and Results Per Re-	Not Reported; Not Reported						

EVALUATION						
Domain		Metric	Rating	Comments		
Domain 1: Test Substance						
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.		
	Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.		
Domain 2: Test Design						
	Metric 3:	Study Controls	N/A	Not applicable to this study type.		
Continued on next page						

		continu	ed from previous	page				
Study Citation:	ECJRC, (2003).	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).						
OECD Harmonized	Biodegredation in Soil							
Template:								
HERO ID:	679933							
		E	VALUATION					
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 3: Test Condition	ons							
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.				
Domain 4: Test Organis	ms							
c	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 10:	Sampling Methods	N/A	Not applicable for this study type.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 6: Confounding	v/Variable Control							
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable for this study type.				
		Exposure						
Domain 7: Data Present	ation and Analysis							
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized				
		Results	. - · ·	secondary source.				
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.				
Overall Qualit	ty Determina	ation	Medium					

* Related References: Cites: Vikelsoe J, Thomsen M, Johansen E, Carlsen L (1999). Phthalates and Nonylphenols in Soil. Ministry of Environment and Energy, National Environmental Research Institute (NERI), NERI Technical Report No 268. HEROID: 2441663Not previously extracted.

Study Citation:	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Disononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.					
Tomplete:	Biodegredation in Soli					
HERO ID:	2079252					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		68515-48-0; di-isononyl phthalate				
Confidentiality, EndPoint, Ty	/pe,	no; other; experimental; other: not specified				
Guideline Solvent Benetivity Storess	Stability	ND · ND · ND				
Badialabal Sauraa Stata Pu	Stability	INK, INK, INK, INK				
Ovugan pH and CEC	irity	NK; NK; NK				
Test Ture. Test Termenture	and Test Datails	not reported, not reported, Not Penerted				
Sail Type, Test Temperature,	and rest Details	not specified, not reported				
Bulk Density	rganic Carbon, and	olner, not reported; not reported				
Soil Classification, Microbia	l Biomass, and Hu-	not reported; not reported: not reported				
midity						
Duration, Parameter, System,	, and	not reported; not specified; not reported; not reported				
Sampling Frequency		not somested, not somested				
Control and Blank		Not Reported				
Applytical Method Applytic	ol Details and Pe	not reported: not reported: half life				
sults Per Degredation Parame	eter	not reported, not reported, nan-me				
Results Remarks		Not Reported				
Results Value, Standard Deviation Results, Sam-		51 days; not reported; not reported; Not Reported				
ple Time Results, Reference	Substance Results,					
and Reference Substance Cor	mpartment Results					
Kesuits Details		not reported				
Mean Total Recovery Results	and Results Per Re-	not reportea; Not Reported				
covery						

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

		continu	ued from prev	vious page
Study Citation:	ExxonMobil, (20 Diisononyl phtha Biodegredation i	010). Attachment 1a: Endpoint summaries alate (DINP) and table of contents for DINI n Soil	s for mammal P dossier infor	ian and environmental toxicity submitted in the REACH registration dossier for mation on the ECHA website and provided to CPSC on a DVD.
Template.	Diodegredation	11 501		
HERO ID:	2079252			
		Ι	EVALUATIO	N
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Low	Test method information was not reported.
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported.
	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 Organis	ms			
Domain 1. 10st Organis	Metric 9:	Outcome Assessment Methodology	Low	The test organism, species, or inoculum source were not reported, however a standard method was used.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome As	sessment Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differ- ences or absence of details were not likely to be severe or have a substantial impact on the study results
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported.
Domain 6: Confounding	g/Variable Control Metric 13: Metric 14:	Confounding Variables Health Outcomes Unrelated to Exposure	N/A N/A	The metric is not applicable to this study type. The metric is not applicable to this study type.
Domain 7. Data Present	tation and Analysis			
	Metric 15: Metric 16:	Data Reporting Statistical Methods and Kinetic Calculations	Low N/A	There was insufficient data reported. The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Qualit	ty Determin	nation	Low	

Study Citation: C	Chemical Manufac	turers Association, (1984). Phthalate esters panel: Summary report: Environmental studies - Phase I. Generation of environmental fate				
OECD Harmonized A	and effects data bas Aquatic Bioconcen	tration				
Template: HERO ID: 7	325943					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; DINP				
Confidentiality, Type, and Guid	deline	no; Calculation; other: not specified				
Solvent, Reactivity, Storage, St	tability	NR; NR; NR				
Radiolabel, Source, State, Purit	ty	NR; NR; NR Notes: NR				
Test Organism and Test Organi	ism Details	NR; NR				
Lipid Content, Test Temperatur	re, pH, and Depu-	NR; NR; NR				
ration Time		ND · ND				
Dissolved Oxygen, Conductivit	y ity and Hardness	NR. NR. NR				
Exposure Route Elimination a	and Nominal Mea-	NR: NR				
surements						
Test Type, Test Temperature, and	and Test Condition	NR; NR; NR				
Comments Duration Parameter and Samp	aling Frequency	NR · NR				
Concentration	Julig Trequency	INK, INK, INK				
Analytical Method and Analytical Details		NR NR ·				
Rate Constant and Results per Recovery		NR, NR				
Statistics Basis and Calculation	on Basis	NR·NR				
Results Value and Results Details		NR: Reports a predicted BCF=1155; log BCF=(0.542 x log Kow)+0.124; calculated using Kow values that were calculated from water solubility:				
		log Kow=5.2-0.68 x log (micromolar WS).				
Metabolites, Reference, and F	Results Reference	NR; NR; NR				
Substance						

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substan	ce				
	Metric 1:	Test Substance Identity	High	The test substance was identified.	
	Metric 2:	Test Substance Purity	Medium	The test substance and purity were not reported.	
Domain 2: Test Design	Metric 3: Metric 4:	Study Controls Test Substance Stability	N/A N/A	The study did not require concurrent control groups. This metric does not apply to this study type.	
Domain 3: Test Condition	ons Metric 5:	Test Method Suitability	N/A	This metric does not apply to this study type.	
	Continued on next page				

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		continu	ed from prev	vious page
Study Citation:	Chemical Manufa and effects data ba	cturers Association, (1984). Phthalate este	ers panel: Sur	nmary report: Environmental studies - Phase I. Generation of environmental fate
OECD Harmonized	Aquatic Bioconce	ntration		
HERO ID:	7325943			
		E	VALUATIO	N
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 Organisi	ms			
	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 Ass	sessment			
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	N/A	This metric does not apply to this study type.
Domain 6: Confounding	/Variable Control			
c c	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric does not apply to this study type.
		Exposure		
Domain 7: Data Presenta	ation and Analysis			
	Metric 15:	Data Reporting	N/A	This metric does not apply to this study type.
	Metric 16:	Statistical Methods and	Medium	Equation used for calculation was reported.
		Kinetic Calculations		
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 Qualit	y Determina	ation	High	

Study Citation:	EC/HC, (2015). S di-C8-10-branched	tate of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, dikyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.				
OECD Harmonized	Aquatic Bioconcer	ntration				
Template:						
HERO ID:	3688004					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate				
Confidentiality, Type, and C	Guideline	no; experimental; other: food-web magnification				
Solvent, Reactivity, Storage	, Stability	NR; NR; NR				
Radiolabel, Source, State, P	Purity	NR; NR; NR Notes: DINP				
Test Organism and Test Org	ganism Details	18 marine species; representing four trophic levels				
Lipid Content, Test Temper	ature, pH, and Depu-	not applicable; not applicable; not applicable; not applicable				
ration Time		notivel water marines not annliashlas not reported				
Dissolved Ovygen Conduct	tivity and Hardness	natural water-marine, not applicable, not reported				
Exposure Poute Eliminatio	n and Nominal Maa	environment: not applicable; not applicable				
surements	in, and Nominal Mea-					
Test Type, Test Temperature	e, and Test Condition	field study; not applicable; not reported				
Comments	1' F					
Duration, Parameter, and Sampling Frequency		not applicable; FWMF (food web magnification factor); not reported				
Concentration		Not Reported				
Analytical Method and Analytical Details		not reported;				
Rate Constant and Results per Recovery		not reported; not reported				
Statistics, Basis, and Calcul	ation Basis	Not Reported; food web; Not Reported				
Results Value and Results E	Details	0.46; DINP was detected in 13 of 18 species sampled				
Metabolites, Reference, an	d Results Reference	not reported; not applicable; Not Reported				
Substance						

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Condition	ons			
	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.
		(Continued on next page	

		continu	ued from previous	page				
Study Citation:	EC/HC, (2015). S di-C8-10-branche	State of the science report: Phthalate subst	ance grouping 1,2-	Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, al Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.				
OECD Harmonized	Aquatic Bioconce	Aquatic Bioconcentration						
Template:	-							
HERO ID:	3688004							
		Ι	EVALUATION					
Domain		Metric	Rating	Comments				
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.				
Domain 4: Test Organi	sme							
Domain 4. Test Organi	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	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 5: Outcome As	ssessment							
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 6: Confoundin	g/Variable Control							
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.				
Domain 7. Data Presen	tation and Analysis							
Domain // Data 11000	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 8: Other								
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized secondary source.				
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.				
Overall Quali	ty Determin	ation	Medium					

* Related References: cites: HEROID: 789501: Mackintosh CE, Maldonado J, Hongwu J, Hoover N, Chong A, Ikonomou MG, Gobas FAPC. 2004. Distribution of phthalate esters in a marine aquatic food web: Comparison to polychlorinated biphenyls. Environ Sci Technol 38:2011-2020.

Study Citation:	EC/HC, (2015). St di-C8-10-branched	tate of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, aci					
OECD Harmonized	Aquatic Bioconcer	Aquatic Bioconcentration					
Template: HERO ID:	3688004						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate					
Confidentiality, Type, and C	Guideline	no; experimental; other: not specified					
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR					
Radiolabel, Source, State, F	Purity	NR; NR; NR Notes: DINP					
Test Organism and Test Org	ganism Details	rainbow trout; Oncorhynchus mykiss					
Lipid Content, Test Temper ration Time	rature, pH, and Depu-	5%; not reported; not reported; 8 days					
Media Type, TOC, and Sali	inity	not specified; not reported; not reported					
Dissolved Oxygen, Conduc	tivity, and Hardness	not reported; not reported; not reported					
Exposure Route, Eliminatio	on, and Nominal Mea-	dietary; not reported; not specified					
surements Test Type, Test Temperature, and Test Condition		not reported; not reported; Not Reported					
Duration, Parameter, and Sa	ampling Frequency	22 days; BCF; not reported					
Concentration		182 mg/kg feed					
Analytical Method and Analytical Details		not reported;					
Rate Constant and Results per Recovery		elimination rate: 1.16/day; not reported					
Statistics, Basis, and Calculation Basis Not Reported; total lipid con		Not Reported; total lipid content; Not Reported					
Results Value and Results I	Details	<3 L/kg wet weight; tissue elimination half-life: <1 day; BMF: <0.1					
Metabolites, Reference, ar Substance	nd Results Reference	not reported; Not Reported; Not Reported					

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substance	e			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.
Domain 3: Test Conditio	ns			
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
		C	ontinued on next page	•••

		continu	ed from previous	s page			
Study Citation:	EC/HC, (2015). di-C8-10-branche	State of the science report: Phthalate substa ed alkyl esters, C9-rich (Diisononyl Phthala	ance grouping 1,2 te; DINP). Chemi	-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, cal Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.			
OECD Harmonized	Aquatic Bioconce	Aquatic Bioconcentration					
Template:							
HERO ID:	3688004						
		E	VALUATION				
Domain		Metric	Rating	Comments			
Domain 4: Tast Organi	a m a						
Domain 4. Test Organi	Metric 9:	Outcome Assessment Methodology	High	The test organism information was reported and routinely used for similar study types			
			0	and appropriate for the study method or route.			
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.			
D							
Domain 5: Outcome A	ssessment						
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.			
Domain 6: Confoundir	og/Variable Control						
Domain 0. Comoundin	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source			
	Metric 14:	Health Outcomes Unrelated to	N/A	Not applicable to this study type			
	Meure 14.	Exposure	IN/A	Not applicable to this study type.			
		Exposure					
Domain 7: Data Preser	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.			
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Results	27/4	secondary source.			
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.			

* Related References: cites: ExxonMobil Biomedical Sciences, Inc. 2002. Fish dietary bioaccumulation study. CAS number 68515-48-0. 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich. Internal company data [cited in ECHA 2014].

Study Citation:	EC/HC, (2017). D	raft screening assessment: Phthalate substance grouping.			
OECD Harmonized	CD Harmonized Aquatic Bioconcentration				
Template:	5252101				
HERO ID:	5353181				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		28553-12-0 and 68515-48-0; Not Reported			
Confidentiality, Type, and	Guideline	None; Not specified; other: Not reported			
Solvent, Reactivity, Storage	e, Stability	Not Reported; Not Reported; Not Reported; Not Reported			
Radiolabel, Source, State, I	Purity	Not Reported; Not Reported; Not Reported; Not Reported			
Test Organism and Test Or	ganism Details	Not Reported; Not Reported			
Lipid Content, Test Tempe	rature, pH, and Depu-	Not Reported; Not Reported; Not Reported; Not Reported			
ration Time Media Type, TOC, and Sal	inity	Not Reported; Not Reported; Not Reported			
Dissolved Oxygen, Conduc	ctivity, and Hardness	Not Reported; Not Reported; Not Reported			
Exposure Route, Elimination	on, and Nominal Mea-	Not Reported; Not Reported; Not Reported			
surements					
Comments	re, and Test Condition	Not Reported; Not Reported; Not Reported			
Duration, Parameter, and S	ampling Frequency	Not Reported; Not Reported; Not Reported			
Concentration		Not Reported			
Analytical Method and Ana	alytical 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: 28			
Metabolites, Reference, an	nd Results Reference	Not Reported; Not Reported; Not Reported			
Substance					

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	nce			
	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	Dataile regarding the use of control groups were not reported in the secondary source
	Metrie 4:	Test Substance Stability	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 Conditi	ions			
	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.
			Continued on next page	

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		C	ontinued from previous page	e
Study Citation: OECD Harmonized Template:	EC/HC, (2017). Aquatic Bioconc	Draft screening assessment: Phthalate subscentration	tance grouping.	
HERO ID:	5353181			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Low	The testing consistency could not be evaluated due to limited information reported by the secondary source.
	Metric 8:	System Type and Design	Uninformative	The system type was not reported in the secondary source.
Domain 4: Test Organis	sms			
	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 As	ssessment			
	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: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty were not reported.
	Metric 14:	Health Outcomes Unrelated to	Low	Health outcomes were not described in the secondary source.
		Exposure		
Domain 7: Data Presen	tation 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: OECD Harmonized	EC/HC, (2017). Dr Aquatic Bioconcen	aft screening assessment: Phthalate substance grouping. tration		
HERO ID:	5353181			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		26761-40-0 and 68515-49-1; Not Reported		
Confidentiality, Type, and G	Juideline	None; Not specified; other: Not reported		
Solvent, Reactivity, Storage	, Stability	Not Reported; Not Reported; Not Reported; Not Reported		
Radiolabel, Source, State, P	Purity	Not Reported; Not Reported; Not Reported; Not Reported		
Test Organism and Test Org	anism Details	Not Reported; Not Reported		
Lipid Content, Test Temper	ature, pH, and Depu-	Not Reported; Not Reported; Not Reported; Not Reported		
ration Time Media Type, TOC, and Salin	nity	Not Reported; Not Reported; Not Reported		
Dissolved Oxygen, Conduct	tivity, and Hardness	Not Reported; Not Reported; Not Reported		
Exposure Route, Elimination	n, and Nominal Mea-	Not Reported; Not Reported; Not Reported		
surements Test Type, Test Temperature Comments	e, and Test Condition	Not Reported; Not Reported		
Duration, Parameter, and Sa	ampling 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 Calcul	ation Basis	Not Reported; Not Reported; Not Reported		
Results Value and Results D	Details	Not Reported; BAF: 11		
Metabolites, Reference, an Substance	d Results Reference	Not Reported; Not Reported; Not Reported		

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substar	nce			
	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 Conditi	ions			
	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.
	Metric 7:	Testing Consistency	Low	The testing consistency could not be evaluated due to limited information reported by the secondary source.
			Continued on next page	

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		co	ntinued from previous page	9					
Study Citation: OECD Harmonized	EC/HC, (2017). D Aquatic Bioconce	EC/HC, (2017). Draft screening assessment: Phthalate substance grouping. Aquatic Bioconcentration							
HERO ID:	5353181								
			EVALUATION						
Domain		Metric	Rating	Comments					
	Metric 8:	System Type and Design	Uninformative	The system type was not reported in the secondary source.					
Domain 4: Test Organis	sms								
C C	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 As	ssessment								
	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: Confoundin	g/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 Presen	tation 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 Quali	ty Determin	ation	Uninformative						

Overall Quality Determination

* Related References: Environmental Canada, Health Canada 2015a, 2015b, 2015c, 2015d. (HERO IDs: 7264200, 3688160, 3688004, 7264199)

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl" phthalate (DINP).					
OECD Harmonized	Aquatic Bioconcer	itration				
HERO ID.	679933					
IILKO ID:	017755					
Demonster		EXTRACTION				
Parameter						
CASRN and Test Material		68515-48-0 and 28553-12-0: Diisononyl phthalate				
Confidentiality, Type, and Gu	uideline	None: Experimental: Not Reported: NR				
Solvent, Reactivity, Storage,	Stability	NR; NR; NR				
Radiolabel, Source, State, Pu	urity	14C: NR: NR				
Test Organism and Test Orga	anism Details	mussel, Arca zebra; NR				
Lipid Content, Test Tempera	ture, pH, and Depu-	NR; NR; NR				
ration Time	•.					
Media Type, TOC, and Salin	uty	NR; NR				
Dissolved Oxygen, Conducti	ivity, and Hardness	NR; NR				
Exposure Route, Elimination	i, and Nominal Mea-	NR; NR; NR				
Test Type, Test Temperature,	, and Test Condition	NR; NR; Not Reported				
Comments	mpling Frequency	ND. RCF. ND				
Concentration	inpling Prequency	NK; BUF; NK				
Analytical Method and Analytical Details		NR - Not Reported:				
Rate Constant and Results per Recovery		Not Reported: NR				
Statistics, Basis, and Calcula	ation Basis	Not Reported: NR: NR				
Results Value and Results De	etails	680 and 1.844; BCF = $680 / 24$ hr; steady-state BCF = 1.844 (first order kinetics)				
Metabolites, Reference, and Substance	d Results Reference	Not Reported; Not Reported				

			EVALUATION	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substan	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.		
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.		
Domain 2: Test Design						
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.		
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.		
Domain 3: Test Condition	ons					
	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.		
Continued on next page						

		continu	ed from prev	vious page
Study Citation:	ECJRC, (2003).	European Union risk assessment report:	1,2-Benzene	dicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"
OECD Harmonized	Aquatic Bioconcer	ntration		
Template:	1			
HERO ID:	679933			
		E	VALUATIO	N
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.
Domain 4: Test Organisi	ns			
_	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome Ass	sessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding	/Variable Control			
C	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.
Domain 7: Data Presenta	ation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported in the secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized secondary source, however no citation was reported.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.
Overall Qualit	y Determina	ation	Low	

* Related References: No citation reported.Not previously extracted.

Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"						
OFCD Harmonized	prinalate (DINP). Aquatic Bioconcentration						
Template.	Aquatic Dioconcer	Aquaic Disconcentration					
HERO ID:	679933						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		68515-48-0 and 28553-12-0; Diisononyl phthalate					
Confidentiality, Type, and G	Juideline	None; Experimental; preliminary study; Not Reported: NR					
Solvent, Reactivity, Storage	, Stability	NR; NR; NR					
Radiolabel, Source, State, P	Purity	NR; NR; NR					
Test Organism and Test Org	ganism Details	Mussel; Collected from Seine estuary, France					
Lipid Content, Test Tempera	ature, pH, and Depu-	NR; NR; NR					
ration Time	•.	אזיג חזיג איז					
Media Type, TOC, and Salii	nity						
Dissolved Oxygen, Conduct	tivity, and Hardness	NK; NK					
Exposure Route, Elimination	n, and Nominal Mea-	NR; NR; Measured in water					
Test Type, Test Temperature	e, and Test Condition	Field study: NR: Not Reported					
Comments	,						
Duration, Parameter, and Sa	ampling Frequency	NR; BAF; One sampler per location					
Concentration		1.1 - ug/L					
Analytical Method and Analytical Details		NR; Not Reported;					
Rate Constant and Results per Recovery		Not Reported; NR					
Statistics, Basis, and Calculation	ation Basis	Not Reported; Wet wt; NR					
Results Value and Results D	Details	68; 75 ug/kg wwt in fish from field study in Seine estuary, France					
Metabolites, Reference, an	nd Results Reference	Not Reported; Not Reported; Not Reported					
Substance							

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

		contin	ued from previous	page
Study Citation:	ECJRC, (2003). phthalate (DINP).	European Union risk assessment report:	1,2-Benzenedicart	poxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"
OECD Harmonized	Aquatic Bioconce	ntration		
Template:				
HERO ID:	679933			
]	EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organis	ms			
Domain 4. Test Organis	Metric 9.	Outcome Assessment Methodology	N/A	Not applicable for this study type
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.
Domain 6: Confounding	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 14:	Health Outcomes Unrelated to	Medium	Details regarding this metric were not reported in the secondary source.
		Exposure		
Domain 7: Data Present	ation and Analysis			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized
		Results		secondary source.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.
Overall Qualit	ty Determin	ation	Medium	

* Related References: Elf Atochem (1997). Analyse des phthalates dans l'estuaire de la Seine. Centre d'application de Levallois, Service Analyse Environnement, Internal Report 97/SAE8/0544/PL, 10/04/1997HEROID not located.Not previously extracted.

Study Citation: ECJRC	ECJRC, (2003). European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"					
phthala OFCD Harmonized Aquati	phthalate (DINP).					
Tompleto:	Aquatic Bioconcentration					
HERO ID· 679933						
-	EXTRACTION					
Parameter	Data					
CASRN and Test Material	Not Reported; Diisononyl phthalate					
Confidentiality, Type, and Guideline	None; Experimental; Not Reported: NR					
Solvent, Reactivity, Storage, Stability	NR; NR; NR					
Radiolabel, Source, State, Purity	NR; NR; NR					
Test Organism and Test Organism De	Midge; NR					
Lipid Content, Test Temperature, pH	u- NR; NR; NR					
ration Time						
Media Type, TOC, and Salinity	NK; NK; NK					
Dissolved Oxygen, Conductivity, and						
Exposure Route, Elimination, and No	a- Sediment; NK; NK					
Test Type, Test Temperature, and Tes	NR; NR; Not Reported					
Comments						
Duration, Parameter, and Sampling F	NR; BCF; NR					
Concentration	NR -					
Analytical Method and Analytical De	NR; Not Reported;					
Rate Constant and Results per Recover	Not Reported; NR					
Statistics, Basis, and Calculation Basi	Not Reported; Emerging animals, not in shells; NR					
Results Value and Results Details	0.6; Not Reported					
Metabolites, Reference, and Results	Not Reported; Not Reported; Not Reported					
Substance						

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substanc	e				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.	
	Metric 2:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported in the secondary source.	
Domain 3: Test Conditio	ns				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in the secondary source.	
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported in the secondary source.	
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Study Citation:	ECJRC, (2003). European Union risk assessment report: 1,2-B phthalate (DINP).			2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"		
OECD Harmonized	Aquatic Bioconcentration					
Template:						
HERO ID:	679933					
]	EVALUATION			
Domain		Metric	Rating	Comments		
Domain 4: Test Organis	ms					
2 oniani il 1000 organis	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.		
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.		
		1 0				
Domain 5: Outcome As	sessment					
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.		
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.		
Domain 6: Confounding	Variable Control					
Domain 0. Comounding	Metric 13.	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source		
	Metric 14:	Health Outcomes Unrelated to	Medium	Details regarding this metric were not reported in the secondary source.		
	incure i ii	Exposure	Wedduin	Details regarding this means were not reported in the secondary source.		
Domain /: Data Present	Ation and Analysis	Data Banartina	Madium			
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.		
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.		
-		Kinetic Calculations				
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized		
		Results		secondary source.		
	Metric 18.	OSAR Models	N/A	Not applicable for this study type.		

* Related References: Cites: Brown D, Thompson RS, Stewart KM, Croudace CP, Gillings E (1996). The effect of phthalate ester plasticizers on the emergence of the Midge (Chironomus riparius) from treated sediments, Chemosphere 32(11), 2177-2187. HEROID: 1334624 Not previously extracted.

Study Citation:	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Diisononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.				
OECD Harmonized	Aquatic Bioconcentration				
Template:					
HERO ID:	2079252				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		68515-48-0; di-isononyl phthalate			
Confidentiality, Type, and C	Guideline	no; experimental; other: biomagnification			
Solvent, Reactivity, Storage	e, Stability	RN; NR; NR			
Radiolabel, Source, State, Purity		NR; NR; NR			
Test Organism and Test Organism Details		rainbow trout; not reported			
Lipid Content, Test Temperature, pH, and Depu-		not reported; not applicable; not applicable; not reported			
ration Time					
Media Type, TOC, and Salinity		not specified; not reported; not reported			
Dissolved Oxygen, Conductivity, and Hardness		not reported; not reported; not reported			
Exposure Route, Elimination, and Nominal Mea-		diet; not applicable; not applicable			
Test Type, Test Temperature, and Test Condition		not specified; not applicable; not reported			
Comments					
Duration, Parameter, and Sampling Frequency		14 days; BMF; 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; lipid normalized; not reported			
Results Value and Results Details		0.1; tissue elimination half-life of 1 day; calculated BCF of <3 L/kg in fish			
Metabolites, Reference, and Results Reference		not applicable; not applicable; Not Reported			
Substance					

EVALUATION							
Domain		Metric	Rating	Comments			
Domain 1: Test Substand	ce						
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.			
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.			
Domain 2: Test Design							
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.			
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.			
Domain 3: Test Conditions							
	Metric 5:	Test Method Suitability	Low	Test method information was not reported.			
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported.			
Continued on next page							
continued from previous page							
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Study Citation:	ExxonMobil, (20 Dijsononyl phthal	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Disconoryl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD					
OECD Harmonized	Aquatic Bioconce	Aquatic Bioconcentration					
HERO ID:	2079252						
		I	EVALUATIO	N			
Domain		Metric	Rating	Comments			
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.			
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.			
Domain 4: Test Organis	ms						
U	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.			
	Metric 10:	Sampling Methods	Low	Test organism information was not reported.			
Domain 5: Outcome As	sessment Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differ-			
				ences or absence of details were not likely to be severe or have a substantial impact on the study results.			
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported.			
Domain 6: Confounding	/Variable Control						
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.			
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	Low	There was insufficient data reported.			
	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	Medium	The study results were reasonable.			
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quality Determination			Low				

Study Citation:	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Disononyl phthalate (DINP) and table of contents for DINP dossier information on the ECHA website and provided to CPSC on a DVD.					
OECD Harmonized	Aquatic Bioconcentration					
Template:						
HERO ID:	2079252					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		68515-48-0; di-isononyl ph	thalate			
Confidentiality, Type, and G	Juideline	no; experimental; other: for	od-web magnification			
Solvent, Reactivity, Storage	, Stability	RN; NR; NR; NR	-			
Radiolabel, Source, State, P	urity	NR; NR; NR; NR				
Test Organism and Test Org	anism Details	18 marine species; not reported				
Lipid Content, Test Temper	ature, pH, and Depu-	not reported; not applicable; not applicable; not applicable				
ration Time	•,					
Media Type, TOC, and Salii	Media Type, TOC, and Salinity		marine, natural water; not reported; not reported			
Dissolved Oxygen, Conduct	tivity, and Hardness	not reported; not reported				
Exposure Route, Elimination	n, and Nominal Mea-	environment; not applicable; not applicable				
Test Type, Test Temperature	e, and Test Condition	field study: not applicable: not reported				
Comments						
Duration, Parameter, and Sa	mpling Frequency	not reported; FWMF (food web magnification factor); not reported				
Concentration		Not Reported				
Analytical Method and Ana	lytical Details	not reported; not reported;				
Rate Constant and Results p	ber Recovery	not reported; not reported				
Statistics, Basis, and Calculation	ation Basis	decreased in tissue concent	ration in organisms of increasing trophic position.;	not specified; not reported		
Results Value and Results Details 0.46; Not Reported						
Metabolites, Reference, an	d Results Reference	not applicable; not applicab	le; Not Reported			
Substance						
			EVALUATION			
Domain		Metric	Rating	Comments		

Domain		Metric	Rating	Comments	
Domain 1: Test Substar	ice				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.	
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.	
Domain 2: Test Design					
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.	
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.	
Domain 3: Test Conditi	ons				
	Metric 5:	Test Method Suitability	Low	Test method information was not reported.	
	Metric 6:	Testing Conditions	Low	Testing conditions were not reported.	
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.	
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.	
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continued from previous page						
Study Citation:	ExxonMobil, (201 Diisononyl phthal	ExxonMobil, (2010). Attachment 1a: Endpoint summaries for mammalian and environmental toxicity submitted in the REACH registration dossier for Discovery physical and provided to CPSC on a DVD.				
OECD Harmonized	Aquatic Bioconce	Aquatic Bioconcentration				
Template: HERO ID:	2079252					
		ŀ	EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 4: Test Organis	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type		
	Metric 10:	Sampling Methods	Low	Test organism information was not reported.		
			2011			
Domain 5: Outcome As	sessment					
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differ- ences or absence of details were not likely to be severe or have a substantial impact on the study results.		
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome(s) were not fully reported.		
Domain 6: Confounding	g/Variable Control					
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.		
	Metric 14:	Exposure	N/A	The metric is not applicable to this study type.		
		Exposure				
Domain 7: Data Present	ation and Analysis					
	Metric 15:	Data Reporting	Low	There was insufficient data reported.		
	Metric 16:	Statistical Methods and	N/A	The metric is not applicable to this study type.		
		Kinetic Calculations				
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.		
Overall Qualit	ty Determina	ation	Low			

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Study Citation: N	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				
OFCD Harmonized	Aquatic food web:	Comparison to polychlorinated biphenyls. Environmental Science & Technology 38(7):2011-2020.			
Template:	Aquance Disconcentration				
HERO ID: 7	789501				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		Not Reported; diisononyl phthalate			
Confidentiality, Type, and Guid	deline	no; experimental; other: food-web magnification study			
Solvent, Reactivity, Storage, S	tability	NR; NR; NR			
Radiolabel, Source, State, Puri	ity	NR; 18 marine species; NR; NR			
Test Organism and Test Organism Details Lipid Content, Test Temperature, pH, and Depu-		18 species: GA=green algae; BA=brown algae; PK=plankton; BM=blue mussels; PO=Pacific oysters; GC=geoduck clams; MC=manila clams; DC=dungeness crabs; St=purple seastar; jPer=juvenile shiner perch; He=Pacific herring; PP=pile perch; SP=striped seaperch; Sc=Pacific staghorn; So=English sole; WG=white-spotted greenling; Dg=spiny dogfish; SS=surf scoters; GA=Enteromorpha intestinalis; BA=Nereocystis luetkeana, Fucus gardneri; PK=plankton; BM=Mytilus edulis; PO=Crassostrea gigas; GC=Panope abrupta; MC=Tapes philippinarum; DC=Cancer magister; St=Pisaster ochraccus; jPer=Cymatogaster aggregata; He=Clupea harengus pallasi; PP=Rhacochilus vacca; SP=Embiotoca lateralis; Sc=Leptocottus armatus; So=Pleuronectes ventulus; WG=Hexogrammos stelleri; Dg=Squalus acanthias; SS=Melanitta perspicillata GA=0.2%; BA=0.08%; PK=0.09%; BM=1.3%; PO=2.1%; GC=0.7%; MC=1.2%; DC=8.0%; SS=2.5-18%; jPer=2.1%; He=3.2%; PP=0.7%;			
		applicable			
Media Type, TOC, and Salinity	у	marine, natural water; not applicable; not reported			
Dissolved Oxygen, Conductivi	ity, and Hardness	not reported; not applicable; not applicable			
Exposure Route, Elimination, a surements	and Nominal Mea-	environmental; not applicable; measured; concentration in samples (ng/g lipid): GA=3.44; BA=2.88; PK=4.04; BM=3.42; PO=2.70; GC=3.71; MC=ND: DC=2.64: St=ND: iPer=2.77: He=ND: PP=2.58: SP=2.61: Sc=2.89: So=2.55: WG=ND: Dc=ND: SS=2.41			
Test Type, Test Temperature, a	and Test Condition	field study; not applicable; 9 individual samples of each species.			
Comments	1° F				
Duration, Parameter, and Samp	pling Frequency	samples collected June-september 1999; food-web magnification factor (F w MF); mot applicable			
Concentration		Not Reported			
Analytical Method and Analyt	ical Details	GC/LRMS; LC/ESI-MS; multiple reaction monitoring (MRM) using MS/MS;			
Rate Constant and Results per	Recovery	Not Reported; not applicable			
Statistics, Basis, and Calculation	on Basis	Not Reported; total lipid content; Not Reported			
Results Value and Results Deta	ails	0.46; lower-upper 95% interval (0.25-0.82)			
Metabolites, Reference, and Results Reference Substance		not applicable; not applicable; Not Reported			

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

		continu	ed from pre	evious page		
Study Citation:	Mackintosh, C. E	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	Aquatic Bioconcentration					
Template:	1					
HERO ID:	789501					
		F	VALUATIO)N		
Domain		Metric	Rating	Comments		
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.		
Domain 2: Toot Conditi						
Domain 5: Test Conditi	Matric 5:	Test Method Suitsbility	High	The test method was suitable for the test substance		
	Metric 6:	Testing Conditions	High	The test include was suitable for the test substance.		
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups		
	Metric 8:	System Type and Design	High	Fauilibrium was established		
	Wietrie 8.	System Type and Design	Ingli	Equinorium was established.		
Domain 4: Test Organis	sms					
	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 As	ssessment					
	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 ana- lyzed.		
Domain 6: Confoundin	a/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	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 assess-		
		Laposure		ment.		
Domain 7. Data Present	tation and Analysis					
Domain 7. Data 1 16501	Metric 15.	Data Reporting	High	analytical methods used were suitable for detection and quantification of the target		
	Methe 15.	Data Reporting	mgn	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	High	Reported values were expected.		
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.		
Continued on next page						

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		continued from previous page		
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	Aquatic Bioconcentration			
Template:				
HERO ID:	789501			
		EVALUATION		
Domain	Metric	Rating	Comments	
Overall Qualit	y Determination	High		

Study Citation:	Solbakken, J. E., H mental Research 1	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ- mental Research 16(2):103-114.				
OECD Harmonized	Aquatic Bioconcer	ntration				
Template:						
HERO ID:	680146					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0· DINP				
Confidentiality Type, and	Guideline	None: Experimental: other: Test substance concentrations measured in Diploria strigosa and Arca zebra and water in an exposure tank				
Solvent, Reactivity, Storag	e. Stability	Ethanol: NR: NR				
Radiolabel, Source, State,	Purity	Di-isononyl[carboxyl-14-C] phthalate: Amersham International. England: NR: 98-99%				
Test Organism and Test Or	ganism Details	Mussels (arca zebra); Groups of five were removed from a tank and frozen until required.				
Lipid Content, Test Tempe	erature, pH, and Depu-	NR; 26.5 C; NR; 4 days				
ration Time						
Media Type, TOC, and Sal	linity	seawater; NR; NR				
Dissolved Oxygen, Condu	ctivity, and Hardness	NR; NR; NR				
Exposure Route, Eliminati	on, and Nominal Mea-	Exposure tanks with 10,392 Dpm/mL of radiolabelled DINP.; Half of the radioactivity was eliminated after four days.; Measured				
Test Type, Test Temperatu	re, and Test Condition	Flow-through (2 L/min); 26.5 C; (dpm mg protein-1)/(dpm ml-1 of initial concentration in seawater)				
Comments						
Duration, Parameter, and S	Sampling Frequency	14 days; Not Reported; Days 0, 1, 4, and 14				
Concentration		10392 Dpm/mL				
Analytical Method and An	alytical Details	Scintillation counting; Packard 300 CD liquid scintillation counter using standard methods (Solune-350 and Dimilume-30, Packard Instrument Co.).:				
Rate Constant and Results	per Recovery	Not Reported; Not Reported				
Statistics, Basis, and Calcu	lation Basis	Not Reported; Muscle w.w.; Not Reported				
Results Value and Results	Details	Reported BCFs of radioactivity were corrected for the different concentrations of radioactivity in the seawater of a parallel experiment with hexachlorocyclohexane for comparison. The correction factor was 0.478.; Mean Biological Concentration Factor of Radioactivity in Arca zebra muscle (corrected by factor of 0.478, reported with Standard Error of the Mean): Day 0: 8.2 (2.2); Day 1: 4.6 (1.7); Day 4: 1.3 (0.6); Day 14: 0.03 (0.01)				
Metabolites, Reference, a Substance	nd Results Reference	NR; Not Reported; Not Reported				

EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance	e			
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	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 and appropriate.
Continued on next page				

Study Citation:	Solbakken, J. E.,	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-			
OECD Harmonized	Aquatic Bioconce	16(2):103-114. entration			
Template:	i quane Diocone				
HERO ID:	680146				
			EVALUATIO	N	
Domain		Metric	Rating	Comments	
Domain 3: Test Condition	ons				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.	
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.	
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between sample groups.	
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.	
Domain 4: Test Organis	ms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.	
	Metric 10:	Sampling Methods	Medium	The test organism is appropriate for the study type but is not routinely used for similar study types.	
Domain 5: Outcome As	sessment				
Domain 5. Outcome ris	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	g/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were accounted for in the data evaluation.	
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on the study results.	
		•			
Domain 7: Data Present	ation and Analysis		т		
	Metric 15:	Data Reporting	Low	Lipid normalized BCF values and lipid content were not measured.	
	Metric 16:	Statistical Methods and	High	An appropriate statistical analysis was reported.	
		Kinetic Calculations			
Domain 8: Other					
	Metric 17:	Verification or Plausibility of	High	The study results are reasonable.	
		Results	-		
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.	
Overall Qualit	ty Determin	ation	High		

* Related References: A BCF of 1,844 was calculated using this data in HERO ID 675437.

Study Citation:	Solbakken, J. E., H	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-				
OECD Harmonized	Aquatic Bioconcer	Aquatic Bioconcentration				
Template: HERO ID:	680146	6				
			EXTRACTIO	DN		
Parameter		Data				
CASRN and Test Material		28553-12-0; DINP				
Confidentiality, Type, and C	Guideline	None; Experimental; other: Test subs	stance concentrations	measured in Diploria strigosa and Arca zebra and water in an exposure tank		
Solvent, Reactivity, Storage	e, Stability	Ethanol; NR; NR; NR				
Radiolabel, Source, State, P	Purity	Di-isononyl[carboxyl-14-C] phthalat	e; Amersham Internat	ional, England; NR; 98-99%		
Test Organism and Test Org	ganism Details	Mussels (arca zebra); Groups of five	were removed from a	tank and frozen until required.		
Lipid Content, Test Temper	ature, pH, and Depu-	NR; 26.5 C; NR; 4 days				
Media Type, TOC, and Sali	nity	seawater' NR NR				
Dissolved Oxygen, Conduc	tivity, and Hardness	NR; NR				
Exposure Route, Eliminatio	on, and Nominal Mea-	Exposure tanks with 10,392 Dpm/mL of radiolabelled DINP.; Half of the radioactivity was eliminated after four days.; Measured				
surements						
Test Type, Test Temperature	e, and Test Condition	Flow-through (2 L/min); 26.5 C; test substance concentration also reported as 61 ug/L				
Duration, Parameter, and Sa	ampling Frequency	14 days; Not Reported; Days 0, 1, 4, and 14				
Concentration		10,392 Dpm/mL				
Analytical Method and Ana	lytical Details	Scintillation counting; Packard 300 CD liquid scintillation counter using standard methods (Solune-350 and Dimilume-30, Packard Instrument				
-	-	Co.).;				
Rate Constant and Results p	per Recovery	Not Reported; Not Reported				
Statistics, Basis, and Calcul	ation Basis	Not Reported; Hepatopancreas w.w.; Not Reported				
Results Value and Results E	Details	Reported BCFs of radioactivity were corrected for the different concentrations of radioactivity in the seawater of a parallel experiment with hexachlorocyclohexane for comparison. The correction factor was 0.478.; Mean Biological Concentration Factor of Radioactivity in Arca zebra hepatopancreas (corrected by factor of 0.478, reported with Standard Error of the Mean): Day 0: 183.8 (38.0); Day 1: 125.2 (15.8); Day 4: 64.5 (9 1): Day 14: 14.4 (5.8)				
Metabolites, Reference, an Substance	nd Results Reference	NR; Not Reported; Not Reported				
			EVALUATIO	N .		
Domain		Metric	Rating	Comments		
Domain 1: Test Substand	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		

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 and appropriate.

High

The test substance purity was reported and appropriate.

Test Substance Purity

Domain 3: Test Conditions

Metric 2:

Study Citation:	Solbakken, J. E., I mental Research 1	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ- mental Research 16(2):103-114.				
OECD Harmonized	Aquatic Bioconce	ntration				
Template: HERO ID:	680146					
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.		
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between sample groups.		
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.		
Domain 4: Test Organis	ms					
6	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.		
	Metric 10:	Sampling Methods	Medium	The test organism is appropriate for the study type but is not routinely used for similar study types.		
Domain 5: Outcome As	sessment					
	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	v/Variable Control					
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were accounted for in the data evaluation.		
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on the study results.		
Domain 7: Data Present	ation and Analysis					
	Metric 15:	Data Reporting	Low	Lipid normalized BCF values and lipid content were not measured.		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	An appropriate statistical analysis was reported.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The study results are reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.		
Overall Qualit	ty Determin	ation	High			

* Related References: A BCF of 1,844 was calculated using this data in HERO ID 675437.

Study Citation: So	blbakken, J. E., H	Knap, A. H., Orr, P. L. (1985). Upta	ake and elimination	n of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-		
OECD Harmonized Ad	ental Research 1 quatic Bioconcei	6(2):103-114. ntration				
Template:						
HERO ID: 68	80146					
			EXTRACTIO	DN		
Parameter		Data				
CASRN and Test Material		28553-12-0· DINP				
Confidentiality Type, and Guide	eline	None: Experimental: other: Test subs	tance concentrations	measured in Diploria strigosa and Arca zebra and water in an exposure tank		
Solvent Reactivity Storage Sta	bility	Ethanol: NR: NR: NR		inclusied in Diplota surgosa and thea zoora and water in an exposure tank		
Radiolabel, Source, State, Purity	v v	Di-isononyl[carboxyl-14-C] phthalat	e: Amersham Internat	ional. England: NR: 98-99%		
Test Organism and Test Organism Details		Mussels (arca zebra); Groups of five	were removed from a	tank and frozen until required.		
Lipid Content, Test Temperature	e, pH, and Depu-	NR; 26.5 C; NR; 4 days		· 1		
ration Time						
Media Type, TOC, and Salinity		seawater; NR; NR				
Dissolved Oxygen, Conductivity	y, and Hardness					
Exposure Route, Elimination, ar	nd Nominal Mea-	Exposure tanks with 10,392 Dpm/mL of radiolabelled DINP.; Half of the radioactivity was eliminated after four days.; Measured				
Test Type, Test Temperature, an	d Test Condition	Flow-through (2 L/min); 26.5 C; (dpm mg protein-1)/(dpm ml-1 of initial concentration in seawater)				
Comments						
Duration, Parameter, and Sampl	ing Frequency	14 days; Not Reported; Days 0, 1, 4, and 14				
Concentration	15.11	10392 Dpm/mL				
Analytical Method and Analytic	al Details	Scintillation counting; Packard 300 CD liquid scintillation counter using standard methods (Solune-350 and Dimilume-30, Packard Instrument				
Rate Constant and Results per R	lecoverv	Co.j.; Not Reported: Not Reported				
Statistics, Basis, and Calculation	n Basis	Not Reported: Blood www.Not Reported				
Results Value and Results Detai	ls	Reported BCFs of radioactivity were corrected for the different concentrations of radioactivity in the seawater of a parallel experiment with				
		hexachlorocyclohexane for comparison. The correction factor was 0.478.; Mean Biological Concentration Factor of Radioactivity in Arca zebra				
		blood (corrected by factor of 0.478, reported with Standard Error of the Mean): Day 0: 9.3 (1.8); Day 1: 5.6 (2.0); Day 4: 4.4 (2.7); Day 14: 0.1				
		(0.03).				
Ietabolites, Reference, and Results Reference NR; Not Reported; Not Reported ubstance						
			EVALUATIO	NN		
Domain		Metric	Rating	Comments		
Domain 1: Test Substance						
М	etric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
М	etric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.		

Domain 2: Test Desig	n			
	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 and appropriate.

Domain 3: Test Conditions

Study Citation:	Solbakken, J. E., I mental Research 1	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ- mental Research 16(2):103-114.				
OECD Harmonized	Aquatic Bioconce	ntration				
Template: HERO ID:	680146					
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.		
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between sample groups.		
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.		
Domain 4: Test Organis	ms					
6	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.		
	Metric 10:	Sampling Methods	Medium	The test organism is appropriate for the study type but is not routinely used for similar study types.		
Domain 5: Outcome As	sessment					
	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	v/Variable Control					
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were accounted for in the data evaluation.		
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on the study results.		
Domain 7: Data Present	ation and Analysis					
	Metric 15:	Data Reporting	Low	Lipid normalized BCF values and lipid content were not measured.		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	An appropriate statistical analysis was reported.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The study results are reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.		
Overall Qualit	ty Determin	ation	High			

* Related References: A BCF of 1,844 was calculated using this data in HERO ID 675437.

Study Citation: So	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-					
OECD Harmonized MA	ental Research 1 quatic Bioconcer	6(2):103-114. ntration				
Template:						
HERO ID: 68	30146					
			EXTRACTIC	DN		
Parameter		Data				
CASRN and Test Material		28553-12-0: DINP				
Confidentiality. Type, and Guide	eline	None: Experimental: other: Test subs	tance concentrations	measured in Diploria strigosa and Arca zebra and water in an exposure tank		
Solvent, Reactivity, Storage, Sta	ability	Ethanol; NR; NR; NR				
Radiolabel, Source, State, Purity	v	Di-isononyl[carboxyl-14-C] phthalate	e; Amersham Internat	ional, England; NR; 98-99%		
Test Organism and Test Organis	sm Details	Mussels (arca zebra); Groups of five	were removed from a	tank and frozen until required.		
Lipid Content, Test Temperatur	e, pH, and Depu-	NR; 26.5 C; NR; 4 days				
ration Time						
Media Type, TOC, and Salinity	v. and Handnasa	Seawater; NK; NK				
Exposure Poute Elimination at	y, and Hardness	Exposure tanks with 10 392 Dpm/mL of radiolabelled DINP. Half of the radioactivity was eliminated after four days. Measured				
surements	nd i voninar wica-	Exposere tanks with 10,552 Ephymet of radiotabened D141, rian of the radiotaen ity was eminimated after roar days, inclusined				
Test Type, Test Temperature, an	nd Test Condition	Flow-through (2 L/min); 26.5 C; Not Reported				
Comments Duration Parameter and Sampl	ling Frequency	14 days: Not Penartad: Days 0, 1, 4, and 14				
Concentration	ing r requercy	14 days, Not Reported, Days 0, 1, 4, and 14 10392 Dpm/mL				
Analytical Method and Analytic	cal Details	Scintillation counting: Packard 300 CD liquid scintillation counter using standard methods (Solune-350 and Dimilume-30. Packard Instrument				
		Co.).;				
Rate Constant and Results per F	Recovery	Not Reported; Not Reported				
Statistics, Basis, and Calculation	n Basis	Not Reported; Gills w.w.; Not Reported				
Results Value and Results Detai	ils	Reported BCFs of radioactivity were corrected for the different concentrations of radioactivity in the seawater of a parallel experiment with				
		hexachlorocyclohexane for comparison. The correction factor was 0.478.; Mean Biological Concentration Factor of Radioactivity in Arca zebra gills (corrected by factor of 0.478, reported with Standard Error of the Mean): Day 0: 13.6 (2.4): Day 1: 12.4 (2.2): Day 4: 6.5 (2.9): Day 14: 0.8				
		(0.2)	Joned with Standard	Error of the Mean). Day 0. 15.0 (2.4), Day 1. 12.4 (2.2), Day 4. 0.5 (2.8), Day 14. 0.8		
Metabolites, Reference, and Results Reference NR; Not Reported; Not Reported Substance						
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substance						
М	letric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
Μ	letric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.		

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 and appropriate.

Domain 3: Test Conditions

Study Citation:	Solbakken, J. E., I mental Research 1	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ- mental Research 16(2):103-114.				
OECD Harmonized	Aquatic Bioconce	ntration				
Template: HERO ID:	680146					
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.		
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between sample groups.		
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.		
Domain 4: Test Organis	ms					
6	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.		
	Metric 10:	Sampling Methods	Medium	The test organism is appropriate for the study type but is not routinely used for similar study types.		
Domain 5: Outcome As	sessment					
	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	v/Variable Control					
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were accounted for in the data evaluation.		
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on the study results.		
Domain 7: Data Present	ation and Analysis					
	Metric 15:	Data Reporting	Low	Lipid normalized BCF values and lipid content were not measured.		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	An appropriate statistical analysis was reported.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The study results are reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.		
Overall Qualit	ty Determin	ation	High			

* Related References: A BCF of 1,844 was calculated using this data in HERO ID 675437.

Study Citation:	Solbakken, J. E., K	Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-					
OECD Harmonized	Aquatic Bioconcer	quatic Bioconcentration					
Template:							
HERO ID:	680146						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material	5	28555-12-0; DINP New Environtele other Test substance concentrations are used in Dislaminations and Dislam strikers and entering an environtech					
Solvent Reactivity Storage	Stability	Kone; Experimental; other: Test substance concentrations measured in Dipiona strigosa and Dipiora strigosa and water in an exposure tank Ethanol: NR: NR					
Radiolabel, Source, State, F	Purity	Di-isononyl[carboxyl-14-C] phthalate; Amersham International, England; NR; 98-99%					
Test Organism and Test Org	ganism Details	Diplora strigosa; Eight corals, Diploria strigosa, ca. 20 cm diameter, were collected from 4m depth at North Rock near Bermuda					
Lipid Content, Test Temper	ature, pH, and Depu-	NR; 26.5 C; NR; 4 days					
ration Time Media Type TOC and Salinity		seawater: NR: NR					
Dissolved Oxygen, Conductivity and Hardness		NR: NR					
Exposure Route, Elimination, and Nominal Mea-		samples taaken immediately after exposure and on day 1,4 and 14; Not Reported; Measured					
surements Test Type Test Temperatur	e and Test Condition	Elow through (21/min): 26.5 C: (dnm mg protein 1)/(dnm ml 1 of initial concentration in segmeter)					
Comments	e, and rest Condition	Prow-unough (2 L/min), 20.5 C, (upin ing protein-1)/(upin ini-1 of initial concentration in seawater)					
Duration, Parameter, and Sa	ampling Frequency	14 days; Not Reported; Days 0, 1, 4, and 14					
Concentration		10392 dpm/mL					
Analytical Method and Ana	and Analytical Details Scintillation counting; Packard 300 CD liquid scintillation counter using standard methods (Solune-350 and Dimilume-30, Pac						
Rate Constant and Results p	per Recovery	Not Reported; Not Reported					
Statistics, Basis, and Calcul	lation Basis	Not Reported; Not Reported; Not Reported					
Results Value and Results E	Details	Reported BCFs of radioactivity were corrected for the different concentrations of radioactivity in the seawater of a parallel experiment with hexachlorocyclohexane for comparison. The correction factor was 0.478.; Mean Biological Concentration Factor of Radioactivity in Diplora strigosa (reported with Standard Error of the Mean): Day 0: 0.46 (0.07); Day 1: 0.45 (0.03); Day 4: 0.26 (0.02); Day 14: 0.13 (0.01).= (dpm mg protein-1)/(dpm ml-1 of initial concentration in seawater)DINP was poorly accumulated in the coral tissue and 50% (approx) was eliminated during the first four days after transferring to clean seawater. 30% of the radioactivity remained in the tissue after two weeks.					
Metabolites, Reference, ar Substance	nd Results Reference	NR; Not Reported; Not Reported					

	EVALUATION					
Domain		Metric	Rating	Comments		
Domain 1: Test Substanc	e					
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.		
Domain 2: Test Design						
	Metric 3:	Study Controls	Medium	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 and appropriate.		

Continued on next page ...

Study Citation:	Solbakken, J. E., I	Solbakken, J. E., Knap, A. H., Orr, P. L. (1985). Uptake and elimination of lindane and a phthalate ester in tropical corals and mussels. Marine Environ-				
OECD Harmonized	Aquatic Bioconce	ntration				
Template: HERO ID:	680146					
			EVALUATIO	 N		
Domain		Metric	Rating	Comments		
Domain 3: Test Condition	ons					
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.		
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions between sample groups.		
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.		
Domain 4: Test Organis	ms					
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.		
	Metric 10:	Sampling Methods	Medium	The test organism is appropriate for the study type but is not routinely used for similar study types.		
Domain 5: Outcome As	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	g/Variable Control					
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were accounted for in the data evaluation.		
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on the study results.		
Domain 7: Data Present	ation and Analysis					
	Metric 15:	Data Reporting	Low	Lipid normalized BCF values and lipid content were not measured.		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	An appropriate statistical analysis was reported.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The study results are reasonable.		
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.		
Overall Quality Determination		High				

Study Citation:	EC/HC, (2015). S	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid,						
OFCD Harmonized	di-C8-10-branched	II-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.						
Template.	Terresultar Diocolio							
HERO ID:	3688004							
		EXTRACTION						
Parameter		Data						
CASRN and Test Material		28553-12-0 and 68515-48-0; diisononyl phthalate						
Confidentiality, EndPoint, Type,		no; other; experimental; other: OECD Test Guideline 207 (Earthworm, acute toxicity; OECD 1984a)						
Guideline								
Solvent, Reactivity, Storage, Stability		NK; NK; NK						
Radiolabel, Source, State,	Purity	NR; NR; NR						
Test Organism and Test Or	rganism Details	earthworm; Eisenia fetida						
Lipid Content, Test Tempe	erature, pH, and Depu-	not reported; not reported; not reported; not reported						
ration Time								
Moisture, TOC, and Test C	Conditions Comments	not reported; not reported; not reported						
Nominal Measured and Ti	me Plateau	7571 mg/kg dry weight soil; not reported						
Duration, Parameter, and S	Sampling Frequency	14 day; Not Reported; not reported						
Analytical Method and Analytical Details		not reported; not reported;						
Results Value, Result Type, and Results Standard		0.018; BSAF; not reported						
Deviation								
Calculation Basis and Basi	is	not reported; not reported						
Elimination, Metabolites,	Kinetic Parameter, and	not reported; not reported; not reported; DINP did not bioaccumulate in earthworms under the conditions of the study.						
Statistics								

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

Domain 4: Test Organisms

		continu	ed from previous	page				
Study Citation: OECD Harmonized	EC/HC, (2015). S di-C8-10-branche Terrestrial Biocor	EC/HC, (2015). State of the science report: Phthalate substance grouping 1,2-Benzenedicarboxylic acid, diisononyl ester; 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich (Diisononyl Phthalate; DINP). Chemical Abstracts Service Registry Numbers: 28553-12-0 and 68515-48-0.						
Template:								
HERO ID:	3688004							
		F	EVALUATION					
Domain		Metric	Rating	Comments				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information source was reported and routinely used for similar study types and appropriate for the study method or route.				
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 5: Outcome As	sessment							
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 6: Confounding	g/Variable Control							
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 7: Data Present	ation and Analysis							
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized secondary source.				
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.				
Overall Qualit	ty Determin	ation	Medium					

* Related References: cites: [ECHA] European Chemicals Agency. 2014. Registered Substances database. Search results for CAS RNs [28553-12-0 and 68515-48-0]. Helsinki (FI): ECHA [accessed 2014-04-01]. Available from: www.echa.europa.eu/information-on-chemicals/registered-substances

Study Citation: H	ECJRC, (2003). E	European Union risk assessment report: 1,2-Benzenedicarboxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"				
r	phthalate (DINP).					
OECD Harmonized	Ferrestrial Bioconc	entration				
Template:						
HERO ID: 6	579933					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		Not Reported; Diisononyl phthalate				
Confidentiality, EndPoint, Typ	e,	None; Terrestrial BCF; Experimental; Not Reported				
Guideline						
Solvent, Reactivity, Storage, S	tability	íR; NR; NR				
Radiolabel, Source, State, Puri	ity	NR; NR; NR				
Test Organism and Test Organ	ism Details	Earthworm, Eisenia foetida; Not Reported				
Lipid Content, Test Temperatu	ire, pH, and Depu-	NR; NR; NR				
ration Time						
Moisture, TOC, and Test Conc	litions Comments	NR; NR; NR				
Nominal Measured and Time I	Plateau	up to 10,000 mg/kg; NR				
Duration, Parameter, and Sampling Frequency		14 d; Not Reported; NR				
Analytical Method and Analytical Details		NR; NR;				
Results Value, Result Type, and Results Standard		0.01 - 0.02; steady state may not have been achieved.; BCF; Not Reported				
Deviation						
Calculation Basis and Basis		NR; NR				
Elimination, Metabolites, Kine	etic Parameter, and	NR; NR; Not Reported; Not Reported				
Statistics						

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

Domain 4: Test Organisms

continued from previous page								
Study Citation:	ECJRC, (2003).	European Union risk assessment report:	1,2-Benzenedicarb	oxylic acid, di-C8-10-branched alkyl esters, C9-rich - and di-"isononyl"				
OECD Harmonized	Terrestrial Biocon	Terrestrial Bioconcentration						
Template:								
HERO ID:	679933							
		ŀ	EVALUATION					
Domain		Metric	Rating	Comments				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.				
	Metric 10:	Sampling Methods	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 5: Outcome Ass	sessment							
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in the secondary source.				
Domain 6: Confounding	/Variable Control							
c c	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 14:	Health Outcomes Unrelated to	Medium	Details regarding this metric were not reported in the secondary source.				
		Exposure						
Domain 7: Data Presenta	ation and Analysis							
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in the secondary source.				
	Metric 16:	Statistical Methods and	Medium	Details regarding this metric were not reported in the secondary source.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	High	The results are reasonable based on the data's inclusion in a peer-reviewed/recognized				
		Results		secondary source.				
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.				
Overall Qualit	y Determin	ation	Medium					

* Related References: Cites: Exxon Biomedical Sciences (1996c). Seed Germination Limit Test with Ryegrass and Lettuce. Unpublished Report 199674, 9/7/1996, East Millstone, NJ. HEROID not located.Not previously extracted.

Study Citation: HSDB, (2015). Diisononyl phthalate (CASRN: 28553-12-0). OECD Harmonized Adsorption and Desorption						
HERO ID:	2356022					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		68515-48-0 and 28553-12-0; Not Reported				
Confidentiality, Type, Guide	eline	Not Reported; Not Reported; Not Reported				
Solvent, Reactivity, Storage	, Stability	Not Reported; Not Reported; Not Reported; I	Not Reported			
Radiolabel, Source, State, P	urity	Not Reported; Not Reported; Not Reported; I	Not Reported			
Sampling Frequency, San Number of Replicates	npling Details, and	Not Reported; Not Reported; Not Reported				
pH, Test Temperature, Buffe	er, and Test Details	Not Reported; Not Reported; Not Reported; I	Not Reported			
Matrix, Clay Silts and Orga	nic Carbon, and CEC	Not Reported; Not Reported; Not Reported				
Bulk Density and Matrix De	etails	Not Reported; Not Reported				
Media, Recovery, and Statis	stics	Not Reported; Not Reported				
Transformation Products, E	quilibrium	Not Reported; Not Reported; Not Reported				
Adsorption Details, and Eq	uilibrium Desorption					
Details Reference Substance, Refe	rence Substance Re-	Not Reported; Not Reported; Not Reported				
sults, and Percent Adsorption	on Adsorption Coof	Not Penortad: Estimated Log Koc: 5.40: Not Penortad: Not Penortad				
ficient Results Adsorption	Coefficient Results	Not Reported, Estimated Log Rot. 5.47, Not Reported, Not Reported				
Comments, and Adsorption						
Desorption Type						
Partition Coefficient Type	and Partition Coeffi-	Not Reported; Not Reported				
cient Results Partition Coefficient Phase	and Partition Coeffi-	Not Reported; Not Reported				
cient Results Mass Balance		Not Reported				
			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 1: Test Substance	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.		
Metric 2:		Test Substance Purity	N/A	The metric is not applicable to an estimated value.		
Domain 2: Test Design						
Domain 2. Test Design	Metric 3	Study Controls	N/A	The matric is not applicable to an estimated value		
	Metric 4:	Test Substance Stability	N/Δ	The metric is not applicable to an estimated value.		
	Meule 4.	Test Substance Stability	1VA	The metric is not applicable to an estimated value.		

Domain 3: Test Conditions

Metric 5: Test Method Suitability N/A The metric is not applicable to an estimated value.

		con	tinued from previous page	
Study Citation: OECD Harmonized	HSDB, (2015). D Adsorption and D	Diisononyl phthalate (CASRN: 28553-12-0). Desorption		
HERO ID:	2356022			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to an estimated value.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to an estimated value.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to an estimated value.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to an estimated value.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to an estimated value.
Domain 5: Outcome As	sessment		27/4	
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to an estimated value.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to an estimated value.
Domain 6: Confounding	g/Variable Control			
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to an estimated value.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to an estimated value.
		Exposure		
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	N/A	The metric is not applicable to an estimated value.
	Metric 16:	Statistical Methods and	N/A	The metric is not applicable to an estimated value.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	N/A	The metric is not applicable to an estimated value.
	Metric 18:	Results QSAR Models	Uninformative	The model performance was not reported in the secondary source.
Overall Quali	ty Determin	ation	Uninformative	

Study Citation:	Li, R., Liang, J., D	Duan, H., Gong, Z. (2017). Spatial distribution and seasonal variation of phthalate esters in the Jiulong River estuary, Southeast China.			
OECD Harmonized	nonized Adsorption and Desorption				
Template: HERO ID:	3859571				
		EXTRACTION			
Parameter		Data			
CASEN and Test Material		28553-12-0- DINP			
Confidentiality Type Guid	eline	None: Experimental: other: Not reported: field study			
Solvent, Reactivity, Storage	e, 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, I	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, Buff	fer, and Test Details	Not reported; Not reported; Field study			
Matrix, Clay Silts and Orga	anic Carbon, and CEC	Not Reported; Not reported			
Bulk Density and Matrix D	oetails	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 particulate and no significant relationship to alkyl chain length or log Kow of the studied PAEs			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption		NA; NA; NA			
Reference Substance, Reference Substance Re- sults, and Percent Adsorption		Analytical blank; Not reported; Not reported			
Adsorption Coefficient Ty ficient Results, Adsorption Comments, and Adsorption Desorption Type	pe, Adsorption Coef- n Coefficient Results	Not Reported; Not Reported; Not Reported			
Partition Coefficient Type and Partition Coeffi-		suspended particulate matter/water; 933, NA, 1880 L/kg			
cient Results Partition Coefficient Phase cient Results Mass Balance	and Partition Coeffi-	suspended matter-water; Calculated for wet, normal, and dry seasons:Water (wet, normal, dry): 0.15, ND, 0.32 ug/LSuspended particulate (wet, normal, dry): 0.14, 0.50, 0.60 mg/kgSediment (wet, normal, dry): 26.0, 11.9, 39.6 ug/kg NA			

			EVALUATION	N
Domain		Metric	Rating	Comments
Domain 1: Test Substa	nce			
	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

		contir	nued from prev	vious page				
Study Citation:	Li, R., Liang, J., I Marine Pollution	Duan, H., Gong, Z. (2017). Spatial distri Bulletin 122(1-2):38-46.	ibution and sea	sonal variation of phthalate esters in the Jiulong River estuary, Southeast China.				
OECD Harmonized	Adsorption and Desorption							
Template:								
HERO ID:	3859571							
			EVALUATIO	N				
Domain		Metric	Rating	Comments				
	Metric 3:	Study Controls	High	Analytical blanks were included, the results were assumed to be with in an acceptable range.				
	Metric 4:	Test Substance Stability	Medium	Sample storage conditions were reported, sample preparation was reported elsewhere or in supplemental information.				
Domain 3: Test Conditi	ions							
Bomani J. Test Colluin	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 Organia	sms							
	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 As	ssessment							
Domain 5. Outcome As	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: Confoundin	g/Variable Control	Conformation - Mariables	TT: - h	17 1 11 11 2 2 1				
	Metric 13: Matria 14:	Legith Outgomes Unrelated to	High	Variability was addressed between sites and seasons.				
	Metric 14:	Exposure	IN/A	The metric is not applicable to this study type.				
Domain 7: Data Presen	tation and Analysis							
Domain 7. Data Presen	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.				
D								
Domain 8: Other	17							
	Metric 17:	Verification or Plausibility of	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 Quali	ty Determina	ation	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					
OECD Harmonized	Jiulong River, Sout Adsorption and De	heast China. Science of the Total Environment 580(Elsevier):388-397.				
Template:	te:					
HERO ID:	3483279					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; DINP				
Confidentiality, Type, Guide	eline	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, P	urity	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, Sam Number of Replicates	pling Details, and	March 2014; 0-20 cm surface layer of water and 0-10 cm surface layer sediment; Not reported				
pH, Test Temperature, Buffe	er, 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 Organ	nic Carbon, and CEC	Not Reported; Not reported; Not reported				
Bulk Density and Matrix De	etails	Not reported; Natural fluvial and estuarine sediment				
Media, Recovery, and Statis	tics	Natural fluvial and estuarine river; 77.1 - 101.9% (water), 87.0 - 101.7% (sediment); Not reported				
Transformation Products, Ed	quilibrium	Not reported; Not Reported; Not Reported				
Adsorption Details, and Equ	uilibrium Desorption					
Details						
sults and Percent Adsorption	rence Substance Re-	Method blank; < LOQ (water, sediment); Not Reported				
Adsorption Coefficient Typ	e Adsorption Coef-	Not Reported: Not Reported: Not Reported: Not Reported				
ficient Results. Adsorption	Coefficient Results					
Comments, and Adsorption						
Desorption Type						
Partition Coefficient Type and Partition Coeffi-		sediment/water partitioning; 619.048 (North River), 354.55 (West River), 141.28 (estuary) L/kg				
cient Results		adiment water Average water concentrations, 0.21 (North Diver), 0.22 (West Diver), and 0.20 (actuary) wall Average a stimulate 0.12 (North				
cient Results	and Partition Coeffi-	sediment-water; Average water concentrations: 0.21 (North Kiver), 0.22 (West Kiver), and 0.29 (estuary) ug/LAverage sediment: 0.13 (North Piver) 0.078 (West Piver) and 0.041 (estuary) mg/kg				
Mass Balance		NA				
Dullio						

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ce			
	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.

		contin	ued from pre	vious page			
Study Citation:	Li, R., Liang, J., Jiulong River, Sou	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	Adsorption and D	esorption					
Template:							
HERO ID:	3483279						
]	EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 3: Test Conditi	ons						
	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 Organis	sms						
e	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.			
		1 0					
Domain 5: Outcome As	sessment						
	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	v/Variable Control						
2 oniuni of Contouriung	Metric 13:	Confounding Variables	High	Trends in spatial distribution of the pollutants were discussed.			
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.			
		Exposure					
Domain 7: Data Present	tation 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 & Other							
Domain 8: Other	Metric 17.	Verification or Plausibility of	Medium	The results were comparable to previous studies and seem reasonable however without			
	Weule 17.	Results	Weddulli	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 Quali	ty Determin	ation	High				

Study Citation:	Lu, C. (2009). Pre	Lu, C. (2009). Prediction of environmental properties in water-soil-air systems for phthalates. Bulletin of Environmental Contamination and Toxicology					
OECD Harmonized	Adsorption and De	Adsorption and Desorption					
Template:	907140						
HEKU ID: 80/140							
			EXTRACTION				
Parameter		Data					
CASRN and Test Material		28553-12-0; 0					
Confidentiality, Type, Gui	deline	None; QSAR; other: Quantitative Struct	are-Property relationship model for	or estimation of Koc			
Solvent, Reactivity, Storag	e, Stability	Not Reported; Not Reported; Not Report	ed; Not Reported				
Radiolabel, Source, State,	Purity	Not Reported; Not Reported; Not Report	ed; Not Reported				
Sampling Frequency, Sa Number of Replicates	ampling Details, and	Not reported; Not reported; Not reported					
pH, Test Temperature, But	fer, 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 Org	anic Carbon, and CEC	Not Reported; Not reported; Not reported					
Bulk Density and Matrix I	Details	Not reported; Not reported					
Media, Recovery, and Stat	istics	Not reported; Not reported; Not reported					
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption		Not reported; Not reported					
Reference Substance, Ref	erence Substance Re-	Not reported; Not reported; Not reported					
Adsorption Coefficient Type, Adsorption Coef- ficient Results, Adsorption Coefficient Results Comments, and Adsorption		Not reported; Not reported; Not reported					
Partition Coefficient Type	and Partition Coeffi-	Log Koc; 5.49					
Partition Coefficient Phase	e and Partition Coeffi-	Not Reported; Not reported					
cient Results Mass Balance	Results Balance Not reported						
			EVALUATION				
Domain		Metric	Rating	Comments			
Domain 1: Test Substan	nce						
	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.			

Metric 3: Study Controls Test Substance Stability Metric 4:

Test Substance Purity

Domain 3: Test Conditions

Continued on next page ...

N/A

N/A

The metric is not applicable to the study type.

The metric is not applicable to the study type.

The metric is not applicable to the study type.

continued from previous page							
Study Citation:	Lu, C. (2009). Pre	ediction of environmental properties in wa	ter-soil-air systems for phtha	lates. Bulletin of Environmental Contamination and Toxicology			
-	83(2):168-173.	83(2):168-173.					
OECD Harmonized	Adsorption and De	esorption					
Template:	007140						
HERO ID:	80/140						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.			
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.			
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.			
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.			
Domain 4: Test Organis	ms		N 7/A				
	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 As	aaamant						
Domain 5: Outcome As	Matria 11.	Test Substance Identity	NT/A				
	Metric 11:	Test Substance Identity		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						
Domain o. Comounding	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type			
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to the study type.			
		Exposure	10/11	The mean is not approache to the study type.			
		•					
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study type.			
	Metric 16:	Statistical Methods and	N/A	The metric is not applicable to the study type.			
		Kinetic Calculations					
Domain 8: Other							
Domain 0. Other	Metric 17.	Verification or Plausibility of	N/A	The metric is not applicable to the study type			
	metric 17.	Results	11/11	The metre 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 Qualit	ty Determina	ation	Uninformative				

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Study Citation:	Armstrong, D. L., Rice, C. P., Ramirez, M., Torrents, A. (2018). Fate of four phthalate plasticizers under various wastewater treatment processes. Journal					
OECD Harmonized	of Environmental S Miscellaneous	Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 53(12):1075-1082.				
Template:	1820226					
	4829530					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		Not reported; Diisononyl phthalate				
Confidentiality, Type, Guid	leline	None; Experimental; Experimental				
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR				
Radiolabel, Source, State,	Purity	NR; Sigma Aldrich (St. Louis, MO, USA); NR; ≥99.0% Notes: DiNP				
Test Method Details, Test	Condition Details, and	wastewater and sludge sample analysis to evaluate fate of target chemicals; Treatment system configurations reported for each plant in document;				
Test Consistency		Not applicable				
Details System Type Design		WWTPs #1-4 use anaerobic digestion for sludge treatment: WWTPs #5-6 use aerobic processes				
System Type Design	ampling Details	Not specified: wastewater influent and effluent, and sludge sampled				
Test Temperature	ampning Details	Reported plant treatment processing temperatures ranged from 30-380				
Results Details		% change in WWTP #1: .48.7% (Anaerobic Direction Effluent) ±08.0% (final solids) #2: NS (Anaerobic Direction Effluent) NS (final solids):				
Results Details		#3: $+26.2\%$ (Thermal Hydrolysis Effluent). $+52.1\%$ (Anaerobic Digestion). $+10.0\%$ (final solids); #4: $+113\%$ (Anaerobic Digestion Effluent).				
		+20.4% (final solids); #5: -41.1% (Anaerobic Digestion Effluent), -26.7% (final solids);#6: -85.9% (Anaerobic Digestion Effluent), NS (final				
		solids); NS = change in concentration not significant and, thus, not calculated.				
Analytical Method and Analytical Details Ultra High Performance Liquid Chromatograph; Details and metho		Ultra High Performance Liquid Chromatograph; Details and method detection limits (MDLs) cited to a previous publication				
Transformation Products, S	Statistics, and Kinetics	Not applicable; Standard deviation reported for concentration measurements; Not applicable				
Reference Substance and R Substance Results	Reference	Each extraction batch consisted of a blank and a spiked sample for recovery calculations.; Not applicable				

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substance	e				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	High	Test substance analytical standards were reported.	
Domain 2: Test Design					
	Metric 3:	Study Controls	High	Analytical blanks were included and presumably were within a valid range.	
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.	
Domain 3: Test Conditio	ns				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.	
	Metric 6:	Testing Conditions	N/A	This metric is not applicable to this type of study.	
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.	
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.	

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Study Citation:	Armstrong, D. L., of Environmental	Armstrong, D. L., Rice, C. P., Ramirez, M., Torrents, A. (2018). Fate of four phthalate plasticizers under various wastewater treatment processes. Journal of Environmental Science and Health, Part A: Toxic/Hazardous Substances & Environmental Engineering 53(12):1075-1082.					
OECD Harmonized	Miscellaneous						
Template:							
HERO ID:	4829336						
		H	EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 4: Test Organis	ms						
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.			
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.			
Domain 5: Outcome Ass	sessment						
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.			
	Metric 12:	Test Substance Purity	Medium	This metric met the criteria for medium confidence as expected for this type of study.			
Domain 6: Confounding	/Variable Control						
	Metric 13:	Confounding Variables	Medium	This metric met the criteria for medium confidence as expected for this type of study.			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.			
Domain 7: Data Presenta	ation and Analysis						
	Metric 15:	Data Reporting	Medium	Limited analytical detail reported; cited to previous publication.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	This metric met the criteria for medium confidence as expected for this type of study.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	Medium	The study results are reasonable based on the reported data.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Qualit	y Determina	ation	High				

Study Citation:	Schrank, I., Trotter, B., Dummert, J., Scholz-Böttcher, B. M., Löder, M. G. J., Laforsch, C. (2019). Effects of microplastic particles and leaching additive on the life history and morphology of Daphnia magna. Environmental Pollution 255(Pt 2):113233					
OECD Harmonized	nized Miscellaneous					
Template: HERO ID:	7328572					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		Not Reported; diisononylphthalate				
Confidentiality, Type, Guid	leline	No; experimental; experimental				
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR				
Radiolabel, Source, State, Purity		NR; flexible polyvinylchloride (PVC) containing 30% DiNP manufactured by Nexans Research Center (Nexans GmbH, Nuremberg, Germany); Additive in a polymer; NR Notes: NR				
Test Method Details, Test Condition Details, and		PVC (particle sizes between 12 and 276 µm) placed in water, measured concentrations of DiNP were evaluated for 21 days (a day/night rhythm				
Test Consistency Details		of 16:8 h and half an hour dusk and dawn).; PVC particles were mixed with semi-artificial medium used for chronic exposure of daphnid.; Not reported				
System Type Design		beakers contained 100mL medium, Daphnid magna, and PVC particles				
Sampling Frequency and S	ampling Details	Not reported; Not reported; additional detail may be in supporting document				
Test Temperature		20°C				
Results Details		2.67 mg/L DiNP leached out of the flexible PVC into the surrounding medium				
Analytical Method and Analytical Details		GC with a flame ionization detector (FID) and mass spectrometry (MS, EI conditions); Not reported; additional detail in supporting document				
Transformation Products, Statistics, and Kinetics		Not reported; Statistical analysis for this portion of the study was not specified.; Not reported				
Reference Substance and Reference Substance Results		Control system with glass beads; Unclear if DiNP was measured in this system; additional detail may be in supporting document				

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substan	ice			
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Additional detail on test material may be found in supporting document which was not readily available.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Control results were not explicitly reported; however, additional detail may be found in supporting document which was not readily available.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this type of study.
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Medium	Non-standard method.
	Metric 6:	Testing Conditions	Medium	Some conditions, pH and other medium characteristics were not reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this type of study.
	Metric 8:	System Type and Design	Medium	It is unclear if an equilibrium was established.

		continu	ed from previous	page		
Study Citation:	Schrank, I., Trotte on the life history	Schrank, I., Trotter, B., Dummert, J., Scholz-Böttcher, B. M., Löder, M. G. J., Laforsch, C. (2019). Effects of microplastic particles and leaching additive				
OECD Harmonized	Miscellaneous					
Template:						
HERO ID:	7328572					
		E	VALUATION			
Domain		Metric	Rating	Comments		
Domain 4: Test Organis	sms					
	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 As	Matria 11	Trat Calendary a Identita	Madium			
	Metric 11:	Test Substance Identity	Medium	Non-standard method; however, methodology reported the concentration of the target chemical leached into the medium.		
	Metric 12:	Test Substance Purity	Low	No details reported; however, additional detail may be found in supporting document which was not readily available.		
Domain 6: Confounding	g/Variable Control					
·	Metric 13:	Confounding Variables	Low	Confounding variables were not addressed.		
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this type of study.		
		Exposure				
Domain 7: Data Present	tation and Analysis					
	Metric 15:	Data Reporting	Medium	Some detail was omitted; however, additional detail may be found in supporting docu- ment which was not readily available.		
	Metric 16:	Statistical Methods and	Medium	Unclear if statistical analysis was performed on the dataset; however, additional detail		
		Kinetic Calculations		may be found in supporting document which was not readily available.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	Results are reasonable;.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this type of study.		
Overall Ouali	tv Determin	ation	Medium			
Z						

Study Citation: 7	Fran, B. C., Teil, N	<i>I. J.</i> , Blanchard, M., Alliot, F., Chevreuil, M. (2014). BPA and phthalate fate in a sewage network and an elementary river of France.				
I	Influence of hydroclimatic conditions. Chemosphere 119C:43-51.					
OECD Harmonized M	Miscellaneous					
Template:						
HERO ID: 2	2519056					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		Not reported; Di-iso-nonyl phthalate				
Confidentiality, Type, Guidelin	ne	None; Experimental; Experimental				
Solvent, Reactivity, Storage, S	tability	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		DiNP concentrations in WWTP inputs = 27.9 ± 10.3 ug/L, output = 0.56 ± 0.61 ug/L; removal efficiencies estimated by differences between WWTP				
Test Consistency		input and output concentrations.; Wastewater fluxes entering ranged from 270 to 532 m3/d during 2010-2011; transit time inside was ca. 17 hours.;				
Details		The annual mean decrease between inputs and outputs for biological oxygen demand (BOD5), chemical oxygen demand (COD) and suspended matter were of 98%, 91% and 95.2%, respectively, during 2010–2011				
System Type Design		WWTP employs a combined tank (decantation and activated sludge)which treated 157000 m3 of wastewater by biological process and produced about 32 t/year of dry sludge				
Sampling Frequency and Sampling Details		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		98.0% 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, Stati	istics, and Kinetics	Not reported; Not reported; Not reported				
Reference Substance and Reference Substance Results		Not reported; Not reported				

			EVALUATIO	N	
Domain		Metric	Rating	Comments	
Domain 1: Test Substar	ice				
	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 Conditi	ons				
	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	Miscellaneous						
Template:							
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							
6	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	g/Variable Control						
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.			
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.			
		Exposure					
Domain 7: Data Present	tation 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	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:	Vikelsøe, J., Thomsen, M., Carlsen, L. (2002). Phthalates and nonylphenols in profiles of differently dressed soils. Science of the Total Environment					
OECD Harmonized	296(1-3):105-116. Miscellaneous 789658					
Template: HERO ID:						
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		28553-12-0; diisononyl phthalate				
Confidentiality, Type, Guideline		No; Experimental field study; Experimental field study				
Solvent, Reactivity, Storage, Stability		NA; NA; Glass bottles provided with PTFE-lined screw caps, frozen, and stored at -20 deg C; NA				
Radiolabel, Source, State, Purity		NA; soil samples; NA; NA				
Test Method Details, Test Condition Details, and Test Consistency		Samples collected at different depths from eight differently dressed, fertilised andcultured fields and run-off from a sewage sludge storage facility; Danish agriculture fields; Not Reported				
Details System Type Design		complex spiked with 1 mg [D/1]DRD [D/1]RRD and [D/1]DEHD dissolved in athanol, and extracted with dishloromethane				
System Type Design Sampling Frequency and Sampling Details		1 sample was taken once in 1996 and again in 1998. Sampled at 2 positions 5–10 m apart 50 cm long				
Test Temperature		NA for fields samples				
Results Details		20, 62, 7.1, 22, 19, 4.6, 149, 564 and 53 ug/kg dry weight for uncultured, manured 40 years, manured 5 years, artificially fertilised, low sludge, normal sludge, high sludge, high sludge 2 years later, and runoff, respectively.				
Analytical Method and Analytical Details		gas chromatograph-high-resolution mass spectrometer ionisation electron impact; Not Reported				
Transformation Products, Statistics, and Kinetics		NR; Not Reported; Not Reported				
Reference Substance and Reference		Not Reported; Not Reported				
Substance Results						

EVALUATION						
Domain		Metric	Rating	Comments		
Domain 1: Test Substan	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.		
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.		
Domain 2: Test Design						
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.		
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.		
Domain 3: Test Conditions						
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations but these deviations or omissions were not likely to have a substantial impact on study result		
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.		
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.		
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.		
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Study Citation:	Vikelsøe, J., Thomsen, M., Carlsen, L. (2002). Phthalates and nonylphenols in profiles of differently dressed soils. Science of the Total Environment 206(1,3):105, 116						
OECD Harmonized	Miscellaneous						
Template:	700/50						
HERO ID:	/89658						
Domain	EVALUATION Commente						
Domani		Metric	Katilig	Comments			
Domain 4: Test Organis	ms						
	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 Ass	sessment						
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.			
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being ana- lyzed.			
Domain 6: Confounding	g/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 Present	ation and Analysis						
Domain /: Dam Prosent	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							
Domain 6. Outer	Metric 17:	Verification or Plausibility of	High	Reported values were consistent with related physical chemical properties			
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.			
Overall Quality Determination			High				
Study Citation:	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,						
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OECD Harmonized	seawater and sediment of the Bohai Sea and the Yellow Sea. Environmental Pollution 240:235-247.						
Tompleter	Miscellaneous						
	5/33212						
HERU ID;	5455212						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		Not Reported; diisononyl phthalate					
Confidentiality, Type, Guideline		None; monitoring study; monitoring study					
Solvent, Reactivity, Storage, Stability		NR; NR; NR					
Radiolabel, Source, State, Purity		NR; environmental; NR; NR Notes: DiNP					
Test Method Details, Test Condition Details, and		seawater and sediment samples were collected from the Bohai Sea (BS) and the Yellow Sea (YS); Not Reported; Not Reported					
Test Consistency							
Details System Type Design		not applicable					
System Type Design Sampling Frequency and Sampling Details		Nov 9-23, 2014: 46 surface water samples, 29 samples at different water depths and 35 sea-surface microlaver (SML) samples as well as 38					
Sampling Frequency and Sampling Details		sediment samples were collected.					
Test Temperature		not applicable					
Results Details		detected in 1 of 29 samples: 5.41 ng/L (from table) in seawater; sediment detection frequency and concentrations 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					
Transformation Products Statistics and Kinetics		results; detection limits: 0.04-0.52 ng/L for seawater and sediment respectively: risk quotient values for DiNP in water and sediment were					
Transformation Troducts, c	statistics, and Killetics	not reported.					
Reference Substance and Reference		not applicable; not applicable					
Substance Results							

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substan	ce				
	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 Condition	ons				
	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.	
			Continued on next page		

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continued from previous page							
Study Citation:	Zhang, Z. M., Z seawater and sed	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	Miscellaneous	Miscellaneous					
Template:	5/133212						
	5455212						
Damain		M	EVALUATION	Community			
Domain	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type			
	Weule 8.	System Type and Design	IV/A				
Domain 4: Test Organis	ms						
c c	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 As	sessment Matria 11:	Test Substance Identity	Uninformativa	Not anough data was presented to calculate partitioning			
	Metric 12:	Test Substance Purity	High	Not enough data was presented to calculate partitioning. The study reported the use of sampling methods that address the outcome of interest			
	weute 12.		mgn	and used widely accepted methods/approaches for the chemical and media being ana- lyzed.			
Domain 6: Confounding	g/Variable Control						
	Metric 13:	Confounding variables	Medium	the differences in the measurements and statistical techniques were considered or ac- counted 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	N/A	The metric is not applicable to this study type.			
		Exposure					
Domain 7: Data Present	ation and Analysis						
Domain 7: Data Present	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			
	Metric 16:	Statistical Methods and	Medium	kinetic calculations were not clearly described.			
		Kinetic Calculations					
Damain 9. Other							
Domain 8: Other	Metric 17:	Verification or Plausibility of	High	Deported values were within expected range			
	wieure 17.	Results	nıgıı	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				

Term	Definition
BAF	Biaccumulation Factor
BCF	Bioconcentration Factor
BMF	Biomagnification Factor
BSAF	Biota-sediment Accumulation Factor
С	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
М	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

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables

Ŧ	
Term	Definition
nm	Nanometers
NR	Not Reported
OECD	Organisation for Economic Co-operation and Development
· OH	Hydroxyl radical
OPE	Organophosphate Ester
pg/L	Picograms per Liter
ppm	parts per million
QSAR	Quantatative Structure Activity Relationship
RSD	Relative Standard Deviation
SI	Supplemental Information
SIM	Selected Ion Monitoring
SPE	Solid Phase Extraction
STP	Sewage Treatment Plant
TMF	Trophic Magnification Factor
TOC	Total Organic Carbon
TOF	Time of Flight
μ g/L or μ g/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

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