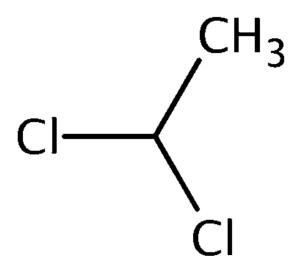


Risk Evaluation for 1,1-Dichloroethane

Systematic Review Supplemental File:

Data Quality Evaluation and Data Extraction Information for Environmental Fate and Transport

CASRN: 75-34-3



June 2025

This supplemental file contains information regarding the data extraction and evaluation results for data sources that were considered for the *Risk Evaluation for 1,1-Dichloroethane (1,1-DCA)* 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 1,1-Dichloroethane (1,1-DCA) – 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. Within the contents of this document, 1,1-dichloroethane may be referred to as the acronyms 1,1-DCA and 1,1-DCE. The acronyms 1,2-DCA, 1,2-DCE, and DCE refer to the chemical 1,2-dichloroethane. The acronyms 1,1,2-TCE, 1,1,2-TCA, and TCE refer to the chemical 1,2-DCP refers to the chemical 1,2-dichloropropane.

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HERO ID	Reference	Page
Photolysis in Air		
29180	Howard, C. J., Evenson, K. M. (1976). Rate constants for the reactions of OH with ethane and some halogen substituted ethanes at 296 K. Journal of Chemical Physics 64(11):4303-4306.	6
1937630	Jiang, Z., Taylor, P. H., Dellinger, B. (1992). Laser photolysis laser-induced fluorescence studies of the reaction of OH with 1,1-dichloroethane over an extended temperature-range. Journal of Physical Chemistry 96(22):8964-8966.	9
1937710	Salomon, D., Kirk, A. W., Tschuikowroux, E. (1977). Primary processes in 147-nm photolysis of 1,1-dichloroethane. International Journal of Chemical Kinetics 9(4):619-628.	11
Hydrolysis		
661098	Jeffers, P. M., Ward, L. M., Woytowitch, L. M., Wolfe, N. L. (1989). Homogeneous hydrolysis rate constants for selected chlorinated methanes, ethanes, ethanes, and propanes. Environmental Science & Technology 23(8):965-969.	13
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	15
29959	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.	17
Photolysis in Water		
29959	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.	21
Photolysis in Soil		
Biodegradation in Water		
1747965	Chen, C., Ballapragada, B. S., Puhakka, J. A., Strand, S. E., Ferguson, J. F. (1999). Anaerobic transformation of 1,1,1-trichloroethane by municipal digester sludge. Biodegradation 10(4):297-305.	23
5443549	Enzminger, J. D. (1988). Anaerobic reductive dechlorination of C2 hydrocarbons in batch and fixed-film bioreactors.	25
664358	Huff, G. F., Braun, C. L., Lee, R. W. (2000). Assessment of potential for natural attenuation of chlorinated ethenes and ethanes in ground water at a petrochemical reclamation site, Harris County, Texas.	27
1742673	Mcnab W W, , J. R., Narasimhan, T. N. (1994). Degradation of chlorinated hydrocarbons and groundwater geochemistry: A field study. Environmental Science & Technology 28(5):769-775.	29
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	31
5442956	Suarez, M. P., Rifai, H. S. (1999). Biodegradation rates for fuel hydrocarbons and chlorinated solvents in groundwater. Bioremediation Journal 3(4):337-362.	35
9861	Tabak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. Journal of Water Pollution Control Federation 53(10):1503-1518.	37
645784	Van Eekert, M. H., Stams, A. J., Field, J. A. (1999). Gratuitous dechlorination of chloroethanes by methanogenic granular sludge. Applied Microbiology and Biotechnology 51(1):46-52.	39
1946074	Vargas, C., Ahlert, R. C. (1987). Anaerobic degradation of chlorinated solvents. Journal of Water Pollution Control Federation 59(11):964- 968.	41
1937750	Washington, J. W., Cameron, B. A. (2001). Evaluating degradation rates of chlorinated organics in groundwater using analytical models. Environmental Toxicology and Chemistry 20(9):1909-1915.	43
Biodegradation in Sediment	D 3 (14)	

1,1-Dichloroethane

10609984	Dow Chemical, (2004). [Redacted] Twins Inn site remediation treatability study.	45
10159218	Grostern, A., Edwards, E. A. (2006). A 1,1,1-trichloroethane-degrading anaerobic mixed microbial culture enhances biotransformation of mixtures of chlorinated ethenes and ethanes. Applied and Environmental Microbiology 72(12):7849.	48
11147658	Hamonts, K., Kuhn, T., Maesen, M., Bronders, J., Lookman, R., Kalka, H., Diels, L., Meckenstock, R. U., Springael, D., Dejonghe, W. (2009). Factors determining the attenuation of chlorinated aliphatic hydrocarbons in eutrohic river sediment impacted by discharging polluted groundwater. Environmental Science & Technology 43(14):5270-5275.	51
1739430	Lookman, R., Borremans, B., De Ceuster, T., Gemoets, J., Diels, L. (2005). Effects of carbon source amendment on the anaerobic degradation of 1,1,1-trichloroethane (TCA) in a contaminated aquifer. Water, Air, and Soil Pollution 166(1-4):197-216.	54
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	56
3489148	Scheutz, C., Durant, N. D., Broholm, M. M. (2014). Effects of bioaugmentation on enhanced reductive dechlorination of 1,1,1-trichloroethane in groundwater: a comparison of three sites. Biodegradation 25(3):459-478.	60
4852412	Şimşir, B., Yan, J., Im, J., Graves, D., Löffler, F. E. (2017). Natural Attenuation in Streambed Sediment Receiving Chlorinated Solvents from Underlying Fracture Networks. Environmental Science & Technology 51(9):4821-4830.	62
Biodegredation in Soil		
5433869	Aziz, C. E., Smith, A. P., Newell, C. J., Gonzales, J. (2000). BIOCHLOR: Chlorinated solvent plume database report. (1):117-124.	64
2191741	Montgomery, L., Assaf-Anid, N., Nies, L., Anid, P. J., Vogel, T. M. (1994). Anaerobic biodegradation of chlorinated organic compounds. :256-276.	66
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	69
2773700	Scheutz, C., Mosbaek, H., Kjeldsen, P. (2004). Attenuation of methane and volatile organic compounds in landfill soil covers. Journal of Environmental Quality 33(1):61-71.	71
645796	Webber, M. D., Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Legault, J. (1997). Persistence of volatile organic compounds in sludge treated soils. Water Quality Research Journal of Canada 32(3):579-597.	73
Aquatic Bioconcentration		
Terrestrial Bioconcentration		
Adsorption and Desorption		
1946157	Dewulf, J., Dewettinck, T., De Visscher, A., Van Langenhove, H. (1996). Sorption of chlorinated C1- and C2-hydrocarbons and monocyclic aromatic hydrocarbons on sea sediment. Water Research 30(12):3130-3138.	87
5443549	Enzminger, J. D. (1988). Anaerobic reductive dechlorination of C2 hydrocarbons in batch and fixed-film bioreactors.	89
5443592	Lam, T. T. (1994). Adsorption and diffusive transport of chlorinated aliphatic solvents in unsaturated soil.	91
733896	Lu, C., Bjerg, P. L., Zhang, F., Broholm, M. M. (2011). Sorption of chlorinated solvents and degradation products on natural clayey tills. Chemosphere 83(11):1467-1474.	93
5440801	Mokrauer, J. E., Kosson, D. S. (1989). Electrophysical sorption of two carbon halogenated solvents onto soil. Environmental Progress 8(4):279-283.	95
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	97
645740	Poole, S. K., Poole, C. F. (1999). Chromatographic models for the sorption of neutral organic compounds by soil from water and air. Journal of Chromatography A 845(1-2):381-400.	101
5159900	RIVM, (2007). Ecotoxicologically based environmental risk limits for several volatile aliphatic hydrocarbons. :217.	103

5444774	Siegrist, H., Mccarty, P. L. (1987). Column methodologies for determining sorption and biotransformation potential for chlorinated aliphatic compounds in aquifers. Journal of Contaminant Hydrology 2(1):31-50.	110
Miscellaneous		
4912133	Buszka, P. M., Yeskis, D. J., Kolpin, D. W., Furlong, E. T., Zaugg, S. D., Meyer, M. T. (2009). Waste-indicator and pharmaceutical compounds in landfill-leachate-affected ground water near Elkhart, Indiana, 2000-2002. Bulletin of Environmental Contamination and Toxicology 82(6):653-659.	113
644857	Dewulf, J. P., Van Langenhove, H. R., Van der Auwera, L. F. (1998). Air/water exchange dynamics of 13 volatile chlorinated C1- and C2-hydrocarbons and monocyclic aromatic hydrocarbons in the southern North Sea and the Scheldt estuary. Environmental Science & Technology 32(7):903-911.	115
644856	Dewulf, J., Van Langenhove, H., Everaert, M., Vanthournout, H. (1998). Volatile organic compounds in the Scheldt estuary along the trajec- tory Antwerp-Vlissingen: Concentration profiles, modelling and estimation of emissions into the atmosphere. Water Research 32(10):2941- 2950.	117
1973123	Dow Chemical, (1983). Nonenymatic reductive dechlorination of chlorinated methanes and ethanes in aqueous solution with cover letter.	119
4214180	Monsanto, (1987). Monsanto Pensacola plant ground water assessment feasibility study with 19 chemicals with attachments and cover letter dated 121887.	121
1265686	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.	123
6629204	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.	125
1745857	Pilko & Assoc. Inc., (1995). Initial submission: Preliminary findings of soil and groundwater sampling, phase 2 investigation - BP chemicals (HITCO) Inc., Gardena Calif., with cover letter dated 07/03/95.	127
5441706	Piwoni, M. D., Wilson, J. T., Walters, D. M., Wilson, B. H., Enfield, C. G. (1986). Behavior of organic pollutants during rapid-infiltration of wastewater into soil: I. Processes, definition, and characterization using a microcosm. Hazardous Waste and Hazardous Materials 3(1):43-55.	129
5441923	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.	131
647200	Washington, J. W. (1996). Gas partitioning of dissolved volatile organic compounds in the vadose zone: Principles, temperature effects and literature review. Groundwater 34(4):709-718.	137
Other Properties		
1745629	ENSR, (1990). Subsurface investigation chlorinated solvents in groundwater: AT&T Information Systems Skokie Works with attachments, cover sheet and letter dated 020690.	139
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Study Citation:	Howard, C. J., Eve Chemical Physics	enson, K. M. (1976). Rate constants for the reactions of OH with ethane and some halogen substituted ethanes at 296 K. Journal of 64(11):4303-4306.
OECD Harmonized	Photolysis in Air	
Template:		
HERO ID:	29180	
		EXTRACTION
Parameter		Data
CASRN and Test Material		Not Reported; 1,1-dichloroethane
Confidentiality, Type, Guid	eline	No; Experimental; other: Discharge-flow system and laser magnetic resonance detection of OH used for the absolute reaction rate constants
Solvent, Reactivity, Storage	e, Stability	Helium; NR; NR; NR
Radiolabel, Source, State, F	Purity	NR; NR; Not Reported; 99.86%
Duration and Test Temperat	ture	Not Reported; 296 K
Light Source, Intensity, and tails	d additional light de-	NA; Not Reported; Not applicable; OH radicals generated from H and NO2
Source Wavelength Lower a	and Upper	Not Reported; Not Reported
Test Details and Control		At pressures of 100 to 1000 Pa (0.7-7 torr); results compared to measurements on similar compounds
Initial Concentration, Refer	rence	Not Reported Not Reported; Not Reported
Compound	1.7.7	
Substance Wavelength Low	11	NA; NA
Direct Quantum Yield Rest by Loss Lower and Upper	uits, Direct Hair Life	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indir	ect Rate	Not Reported; 260E-15 cm3/molecule.sec; Not Reported
Constant Lower and Upper		
Method Details Results and	l Products	Not Reported; Not Reported
Details Results Parameter Value and Param	eter Results	Not Reported; Not Reported
Reference Substance Resul	lts, Percent Degrada-	Not Reported; Not Reported; ± 60
tion Results and Standard	-	
Deviation Results	tima Dagulta Dag-14-	terman har is lifetime (SPC colorilated) - 44.5 days have a on - 1/1/OIII, where [OIII-10E6, Not Departed, Not Departed
Results Remarks, Sample Details	ume Results, Results	tropospheric lifetime (SRC calculated) = 44.5 days based on τ = 1/k[OH], where [OH]=10E6; Not Reported; Not Reported

			EVALUATIO	N
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 test substance source was not reported.
Domain 2: Test Design				
C	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	page

Study Citation:	Howard, C. J., Ev Chemical Physics		r the reactions	of OH with ethane and some halogen substituted ethanes at 296 K. Journal of
OECD Harmonized Template:	Photolysis in Air			
HERO ID:	29180			
]	EVALUATIO	N
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 Condition	ons			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	N/A	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	Some system type and design info was not reported but this was not likely to have a substantial impact on study res
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 As	sessment			
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	Medium	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were not likely to have a substantial impact on study results.
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			
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	Results QSAR Models	N/A	A QSAR model was not reported.

		continued from previous page	
Study Citation:	Howard, C. J., Evenson, K. M. (1976). Rate of Chemical Physics 64(11):4303-4306.	constants for the reactions of OH with eth	ane and some halogen substituted ethanes at 296 K. Journal of
OECD Harmonized	Photolysis in Air		
Template:			
HERO ID:	29180		
		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quali	ty Determination	High	

		P. H., Dellinger, B. (1992). Laser pure-range. Journal of Physical Cher		uced fluorescence studies of the reaction of OH with 1,1-dichloroethane over a		
OECD Harmonized Photolysis in Air		ure-range. Journal of Physical Cher	mistry 96(22):8964	8900.		
Template:	5					
HERO ID: 1	937630					
			EXTRACTIO	N		
Parameter		Data				
CASDN and Test Material		75 24 2.1 1 Dickloreathone				
CASRN and Test Material Confidentiality, Type, Guidelin	0	75-34-3; 1,1-Dichloroethane None; Experimental; other: laser pho	tolucie/locar induced	Augragaanaa taahnigua		
		None; Experimental; other: laser pho NR; NR; NR; NR	torysis/laser-induced	nuorescence technique		
Solvent, Reactivity, Storage, St Radiolabel, Source, State, Puri		NR; NR; NR; NR NR; NR; NR; NR				
		45-90 seconds; 294-800K				
Duration and Test Temperature Light Source, Intensity, and ad		laser-induced fluorescence; 1-2 mJ/cr	n 2. Not applicable			
tails	aunonai ngni de-	laser-induced nuorescence; 1-2 mJ/cf	n2, not applicable			
Source Wavelength Lower and	Upper	193.3 nm; Not applicable				
Test Details and Control		Hydroxyl radicals produced by 193.3	-nm photodissociation	n of CH3CHC12/N20/H20/He gas mixtures; Not reported		
Initial Concentration, Reference	e	Not reported OH concentration range	d from 2E+10 to 4E+1	0 molecules/cm3 as estimated using published values of the N2O absorption coefficient;		
Compound		Not reported				
Substance Wavelength Lower a	**	Not reported; Not reported				
Direct Quantum Yield Results	, Direct Half Life	Not reported; Not reported; Not reported;	rted			
by Loss Lower and Upper	Data	NI-4 manufacture de NI-4 manufacture de NI-4 manufacture	4 - 1			
Indirect Type Results, Indirect Constant Lower and Upper	Rate	Not reported; Not reported; Not reported;	rted			
Method Details Results and Pro	oducts	Not reported; Not reported				
Details Results	oddets	Not reported, Not reported				
Parameter Value and Parameter	r Results	absolute rate coefficient; $k1 = 2.82x1$	0-13 cm3/molecule.se	ec at 294 Kk2 = $1.7x10-11$ cm3/molecule.s		
Reference Substance Results,	Percent Degrada-	Not reported; Not applicable; ± 0.14				
tion Results and Standard						
Deviation Results Results Remarks, Sample time	a Deculte Deculte	GC/MS analysis indicated a purity of	>00% with no datast	able alafinic impurities (2) factor estimated by analogy with other chloroserbon radical		
Details	- Results, Results	GC/MS analysis indicated a purity of>99% with no detectable olefinic impuritiesk2: factor estimated by analogy with other chlorocarbon radical recombination reactions; Not reported; .alphahydrogen abstractionk1: CH3-CHCl2 + OH -> CH3CCl2 (+ CH2CHCl2) + H20k2: CH3CCl2 +				
		OH -> CH3C(OH)Cl2	u, uipiu iijuiogon u			
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
Domain 1: Test Substance			0			
	Aetric 1:	Test Substance Identity	High	The test substance was identified by chemical name.		
	Aetric 2:	Test Substance Purity	High	The test substance purity was reported. The test substance source was not reported.		

Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
			Continued on next	page

Study Citation: OECD Harmonized	Jiang, Z., Taylor, P. H., Dellinger, B. (1992). Laser photolysis laser-induced fluorescence studies of the reaction of OH with 1,1-dichloroethane over an extended temperature-range. Journal of Physical Chemistry 96(22):8964-8966. Photolysis in Air					
Template: HERO ID:	1937630					
		Ι	EVALUATIO	N		
Domain		Metric	Rating	Comments		
	Metric 4:	Test Substance Stability	High	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 Condition	ons					
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 8:	System Type and Design	Medium	This metric met the criteria for high confidence as expected for this type of study.		
Domain 4: Test Organis	ms					
Domain 1. Test Organis	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			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	This metric met the criteria for high confidence as expected for this type of study.		
Domain 6: Confounding	Wariable Control					
Domain 0. Comounding	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.		
	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					
	Metric 15:	Data Reporting	Medium	Some data and half-life data was not reported.		
	Metric 16:	Statistical Methods and	High	This metric met the criteria for high confidence as expected for this type of study.		
		Kinetic Calculations				
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.		
	D.4 ·		TT+ 1			
Overall Qualit	v Determin	ation	High			

Study Citation: OECD Harmonized	Salomon, D., Kirk Kinetics 9(4):619-0 Photolysis in Air	, A. W., Tschuikowroux, E. (1977). Primary processes in 147-nm photolysis of 1,1-dichloroethane. International Journal of Chemical 628.
Template: HERO ID:	1937710	
		EXTRACTION
Parameter		Data
CASRN and Test Material		Not Reported; 1,1-Dichloroethane
Confidentiality, Type, Guide	eline	no; experimental; other: non-guideline: photolysis
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR
Radiolabel, Source, State, F	Purity	NR; Eastman Kodak; NR; ca. 99.9% (fractionally distilled in a conventional glass apparatus) Notes: NR
Duration and Test Temperat	ture	not specified; room temperature
Light Source, Intensity, and	d additional light de-	liquid oxygen cooled xenon resonance lamp; relative intensity of the 129.5 nm line was never greater than 1%; intensities ca. 1.5±0.15E13
tails Source Wavelength Lower a	and Unnan	photons/s; not reported 147 nm; not reported
Test Details and Control	and Opper	
Initial Concentration, Refer		not reported; not reported not reported; not reported
Compound	ence	not reported, not reported
Substance Wavelength Low	er and Upper	not reported; not reported
Direct Quantum Yield Res	ults, Direct Half Life	CH3CHCl2 -> CH2CHCl + HCl ≥ 0.65; CH3CHCl2 -> CH2CCl2 + H2 ca. 0.05; CH3CHCl2 -> CH3CH + Cl2 ≥ 0.20; CH3CHCl2 -> CH4 +
by Loss Lower and Upper		CCl2 = 0.03; CH3CHCl2 -> CH3 + CHCl2 = 0.02; not reported; not reported
Indirect Type Results, Indir		not reported; not reported; not reported
Constant Lower and Upper Method Details Results and		Product identification via isothermal GC; In order of decreasing quantum yields: C2H3Cl, C2H4, C2H2, 1,1-C2H2Cl2, and CH4; 90% was
Details Results	roducts	identified as vinyl chloride, ethylene, and acetylene; small quantities of C2H6, C2H5Cl, and CH2Cl2 detected
Parameter Value and Param	eter Results	not reported; not reported
Reference Substance Resul	lts, Percent Degrada-	not reported; not reported; not reported
tion Results and Standard	c	
Deviation Results Results Remarks, Sample to Details	time Results, Results	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.	
	Metric 2:	Test Substance Purity	High	The source and purity were reorted.	
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.	

			ued from previous				
Study Citation:	Salomon, D., Kirk, A. W., Tschuikowroux, E. (1977). Primary processes in 147-nm photolysis of 1,1-dichloroethane. International Journal of Chemical						
OECD Harris and a	Kinetics 9(4):619	-628.					
OECD Harmonized	Photolysis in Air						
Template: HERO ID:	1937710						
HERO ID:	1937/10						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 5:	Test Method Suitability	Low	The test method was conducted at 147 nm.			
	Metric 6:	Testing Conditions	Low	Specific test conditions were not reported.			
	Metric 7:	Testing Consistency	High	Testing was consistent across study groups.			
	Metric 8:	System Type and Design	Medium	Limited detail regarding the system type and design.			
Domain 4: Test Organis	ms						
U	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	Rates and half-lives were not reported; however, degradation products were identified			
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.			
Demein (. Cenferration	Warishle Canterl						
Domain 6: Confounding	Metric 13:	Confounding Variables	N/A				
		Confounding Variables Health Outcomes Unrelated to		The metric is not applicable to the study type.			
	Metric 14:		N/A	The metric is not applicable to the study type.			
		Exposure					
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	Medium	Analytical details were limited			
	Metric 16:	Statistical Methods and	Medium	Limited detail regarding calculations.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.			
	Metric 18:	Results OSAR Models	N/A				
	Metric 18:	VOAK MODELS	IN/A	The metric is not applicable to the study type.			
Overall Qualit	ty Determin	ation	Medium				

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Study Citation:	ation: Jeffers, P. M., Ward, L. M., Woytowitch, L. M., Wolfe, N. L. (1989). Homogeneous hydrolysis rate constants for selected chlorinated methano ethenes, and propanes. Environmental Science & Technology 23(8):965-969.					
OECD Harmonized	Hydrolysis					
Template:						
HERO ID:	661098					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-Dichloroethane				
Confidentiality, Type, Guid	leline	None; Experimental; other: Neutral and base catalyzed hydrolysis; a range of pH and temperature evaluated. Arrhenius temperature dependence				
Solvent, Reactivity, Storag	e, Stability	assumed. NR: NR: NR				
Radiolabel, Source, State,	Purity	NR; Either Aldrich, Eastman, Pfaltz or Bauer (generalized for all substances tested); NR; Highest purity available Notes: 11-DCA				
Buffer, Test Temperature, Number of Replicates		0.1 M pH 7 phosphate buffer or dilute NaOH or HCl solutions as necessary to achieve the desired conditions; 85-170°C; 5-20 time-concentration points analyzed in triplicate				
Positive Controls and Nega	ative Controls	Positive: Not reported; Negative: Not reported				
pH and Duration		3-12; 30 min to several days (for all test materials; specific duration for tetrachloroethylene not specified)				
Sampling Frequency and T	Fest Setup	Not reported; zero dead-volume stainless steel tubes, glass bulbs drawn from 7-mm-o.d. borosilicate tubing, or zero dead-volume septum vial capped with a Teflon-lined septum				
Concentration		Final solutions were less than 10% saturated with organic test material -				
Analytical Method, Ana Statistics	alytical Details, and	GC using aqueous on-column injections with FID, ECD and/or HELCD; Details specific to target were not reported; r squared >0.95				
Transformation Products		vinyl chloride (alkaline hydrolysis); ethylene glycol (neutral hydrolysis)				
Reference Substance and F	Reference	NR; several test substances included; Not reported				
Substance Results Percent Recovery, Hydroly	vsis Rate	Not reported; k neutral=2.15E-8/min; k basic=7.20E-14/min; k observed=2.15E-8/min; 61.3 years				
Constant, and Half-life Results Remarks		k observed=k neutral + k basic				

EVALUATION						
Domain	Metric	Rating	Comments			
Domain 1: Test Substance						
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name and CASRN.			
Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were stated in a general manner relating to all materials in the study.			
Domain 2: Test Design						
Metric 3:	Study Controls	Medium	Study controls were not included but this did not limit the interpretation of the results.			
Metric 4:	Test Substance Stability	Medium	Details regarding this metric were limited but this did not limit the interpretation of the results.			
Domain 3: Test Conditions						
Metric 5:	Test Method Suitability	High	The method was suitable for the substance; test substance concentration was no higher than 10% of its water solubility limit.			
		Continued on next)age			

Study Citation:	Jeffers, P. M., Ward, L. M., Woytowitch, L. M., Wolfe, N. L. (1989). Homogeneous hydrolysis rate constants for selected chlorinated methanes, ethanes,								
OECD Harmonized	ethenes, and propanes. Environmental Science & Technology 23(8):965-969. Hydrolysis								
Template: HERO ID:	661098	661098							
EVALUATION									
Domain		Metric	Rating	Comments					
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were general but this did not limit the interpretation of the results.					
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were general but this did not limit the interpretation of the results.					
	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								
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.					
Domain 5: Outcome As	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	Details regarding this metric were not reported but this did not limit the interpretation of the results.					
Domain 6: Confounding	g/Variable Control								
	Metric 13:	Confounding Variables	High	This metric met the criteria for high confidence as expected for this type of study.					
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.					
Domain 7: Data Present	tation and Analysis	· · ·							
	Metric 15:	Data Reporting	Low	Details regarding the analytical procedure were very general; this may limit meaning- ful/precise interpretation of the results.					
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.					
Domain 8: Other									
	Metric 17:	Verification or Plausibility of	High	This metric met the criteria for high confidence as expected for this type of study.					
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.					
Overall Quali	tv Determin	ation	High						

* Related References: HSDB; HERO ID 6629204

Stade NCDI (2020) D							
Study Citation: NCBI, (2020). P	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.						
OECD Harmonized Hydrolysis	Hydrolysis						
Template:							
HERO ID: 6629204							
	EXTRACTION						
Parameter	Data						
CASRN and Test Material	75-34-3; 1,1-DCA						
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified						
Solvent, Reactivity, Storage, Stability	NR; NR; NR						
Radiolabel, Source, State, Purity	NR; NR; NR						
Buffer, Test Temperature, Number of Replicates	Not reported; 25°C; Not reported						
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported						
pH and Duration	3 - 12, results reported at pH 7; Not reported						
Sampling Frequency and Test Setup	Not reported; Not reported						
Concentration	Not reported						
Analytical Method, Analytical Details, and Statistics	1 Not reported; Not reported; Not reported						
Transformation Products	Not reported						
Reference Substance and Reference	Not reported; Not reported						
Substance Results Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; Neutral hydrolysis rate constant: 2.15x10-8/minBase-catalyzed rate constant: 7.2 x10-14/min; at pH 7: 61.3 years						
Results Remarks	Not reported						

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substar	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Conditi	ions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 8:	System Type and Design	N/A	Rating of this factor is not applicable to this kind of information.

Domain 4: Test Organisms

		contin	ued from previous	page			
Study Citation:	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.						
OECD Harmonized	Hydrolysis						
Template:							
HERO ID:	6629204						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.			
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.			
Domain 5: Outcome A	ssessment						
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
Domain 6: Confoundin	-						
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.			
		Exposure					
Domain 7: Data Presen	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 16:	Statistical Methods and	Medium	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized			
		Kinetic Calculations		database or other secondary source.			
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	č	database or other secondary source.			
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.			
Overall Quali	ity Determin	ation	Medium				

* Related References: Jeffers PM et al; Environ Sci Technol 23: 965-969 (1989); HSDB

Study Citation: OECD Harmonized	Rathbun, R. E. (19 Hydrolysis	98). Transport, behavior, and fate of volatile organic compounds in streams.			
Template: HERO ID:	29959				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1.1-Dichloroethane			
Confidentiality, Type, Guide	eline	No; Experimental; other: Not reported; secondary source			
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 Notes: Not reported; secondary source			
Buffer, Test Temperature, N	lumber of Replicates	Not Reported; 25 C; Not Reported			
Positive Controls and Negat	tive Controls	Positive: Not Reported; Negative: Not Reported			
pH and Duration		7; Not Reported			
Sampling Frequency and Te	est Setup	Not Reported; Not Reported			
Concentration		Not Reported			
Analytical Method, Anal Statistics	ytical Details, and	Not Reported; Not Reported; Not Reported			
Transformation Products		Not Reported			
Reference Substance and Reference	eference	Not Reported; Not Reported			
Substance Results Percent Recovery, Hydrolys Constant, and Half-life	sis Rate	Not Reported; Not Reported; 688 years			
Results Remarks		Not Reported			

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substar	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; the source cited likely contains more detail.

Domain 4: Test Organisms

		continu	ued from previous	page			
Study Citation:	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.						
OECD Harmonized	Hydrolysis						
Template:							
HERO ID:	29959						
		I	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.			
Domain 5: Outcome A	ssessment						
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the source cited likely contains more detail.			
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.			
Domain 6: Confoundin	g/Variable Control	l					
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the source cited likely contains more detail.			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.			
Domain 7: Data Presen	ntation and Analysi	s					
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the source cited likely contains more detail.			
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the source cited likely contains more detail.			
		Kinetic Calculations					
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information, evaluation of the reasonableness of the study results was not possible; however, additional information may be included in the source cited.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	ity Determi	nation	Medium				

* Related References: Citing Mabey, W. R., Smith, J. H., Podoll, R. T., Johnson, H. L., Mill, T., Chou, T.W., Gates, J., Waight Partridge, I., Jaber, H., Vandenberg, D. Aquatic fate data for organic priority pollutants. 1982. Not in HERO at the time of extraction, closest HERO IDs could be 18147 or 2531325.

Domain 4: Test Organisms

Study Citation: OECD Harmonized Template:	Rathbun, R. E. (19 Hydrolysis	98). Transport, behavior, and fate of	volatile organic compo	unds in streams.
HERO ID:	29959			
			EXTRACTION	
Parameter		Data		
CASRN and Test Material		75-34-3; 1,1-Dichloroethane		
Confidentiality, Type, Gui	deline	No; Experimental; other: Not reported;	secondary source	
Solvent, Reactivity, Storag	e, Stability	Not Reported; Not Reported; Not Repo	orted; Not Reported	
Radiolabel, Source, State,	Purity	Not Reported; Not Reported; Not Repo	orted; Not Reported Notes:	Not reported; secondary source
Buffer, Test Temperature,	Number of Replicates	Not Reported; 25 C; Not Reported		
Positive Controls and Neg	ative Controls	Positive: Not Reported; Negative: Not	Reported	
pH and Duration		7; Not Reported		
Sampling Frequency and T	Test Setup	Not Reported; Not Reported		
Concentration		Not Reported		
Analytical Method, Ana Statistics	alytical Details, and	Not Reported; Not Reported; Not Repo	orted	
Transformation Products		Not Reported		
Reference Substance and I	Reference	Not Reported; Not Reported		
Substance Results Percent Recovery, Hydroly Constant, and Half-life	vsis Rate	Not Reported; Not Reported; 58.2 year	s	
Results Remarks		Half-life = 606 years at pH 7 and 10 de	eg C; 58.2 years at pH 5.6	and 25 deg C; 606 years at pH 5.6 and 10 deg C;
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substar				
Domain 1: Test Substar	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Domain 1: Test Substar		Test Substance Identity Test Substance Purity	High Medium	The test substance was identified by chemical name. Not reported in this secondary source; the source cited likely contains more detail.
	Metric 1:	-	-	
Domain 1: Test Substar Domain 2: Test Design	Metric 1:	-	-	
	Metric 1: Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 2: Test Design	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Purity Study Controls	Medium	Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail.
Domain 2: Test Design	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Purity Study Controls Test Substance Stability	Medium	Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail.
	Metric 1: Metric 2: Metric 3: Metric 4: ons	Test Substance Purity Study Controls	Medium Medium Medium	Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail.
Domain 2: Test Design	Metric 1: Metric 2: Metric 3: Metric 4: ons Metric 5:	Test Substance Purity Study Controls Test Substance Stability Test Method Suitability	Medium Medium Medium	Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail. Not reported in this secondary source; the source cited likely contains more detail.

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.

		cont	inued from previous	page					
Study Citation:	Rathbun, R. E.	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.							
OECD Harmonized	Hydrolysis								
Template:									
HERO ID:	29959								
			EVALUATION						
Domain		Metric	Rating	Comments					
Domain 5: Outcome A	ssessment								
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the source cited likely contains more detail.					
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.					
Domain 6: Confoundir	C								
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the source cited likely contains more detail.					
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.					
		Exposure							
Domain 7: Data Preser	tation and Analysi	S							
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the source cited likely contains more detail.					
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the source cited likely contains more detail.					
		Kinetic Calculations							
Domain 8: Other									
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information, evaluation of the reasonableness of the study results was not possible; however, additional information may be included in the source cited.					
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.					
Overall Quali	ity Determi	nation	Medium						

* Related References: Citing Washington, JW. 1995. Hydrolysis Rates of Dissolved Volatile Organic Compounds Principles Temperature Effects and Literature Review. HERO ID 658879.

Study Citation: OECD Harmonized	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams. Photolysis in Water					
Template: HERO ID:	29959					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-dichloroethane				
Confidentiality, Type, Guid	leline	No; Experimental; Not Reported				
Solvent, Reactivity, Storage, Stability		Not Reported; Not Reported; Not Reported; Not Reported				
Radiolabel, Source, State, Purity		Not Reported; Not Reported; Not Reported; Not Reported				
Duration and Test Tempera	ture	Not Reported; Not Reported				
Light Source, Intensity, an tails	d additional light de-	Not Reported; Not Reported; Not Reported				
Source Wavelength Lower	and Upper	Not Reported; Not Reported				
Test Details and Control		Not Reported; Not Reported				
Initial Concentration and R	eference Compound	Not Reported Not Reported; Not Reported				
Substance Wavelength Low	ver and Upper	Not Reported; Not Reported				
Direct Quantum Yield Res by Loss Lower and Upper	sults, Direct Half Life	Not Reported; Not Reported; Not Reported				
Indirect Rate Constant Low	ver and Upper	Not Reported; Not Reported				
Method Details Results and Details Results	d Products	Not Reported; Not Reported				
Parameter Value and Param	neter Results	Not Reported; Not Reported				
Reference Compound, Refe Substance Results, Percent and Standard Deviation Res	t Degradation Results	Not Reported; Not Reported; Not Reported				
Results Remarks, Sample Details	time Results, Results	Not Reported; Not Reported; Oxidant = 102, singlet oxygen at a concentration of 10^{-12} moles per liter, $t1/2 = >2.2E5$ years; Oxidant = R02•, peroxy radical at a concentration of 10^{-9} moles per liter, $t1/2 = 7.9E4$ years; where $t1/2 = half$ -life for the oxidation process				

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the source cited likely contains more detail.
		Continued on next page	

Study Citation:		1998). Transport, behavior, and fate of volat	ile organic compo	unds in streams.
OECD Harmonized	Photolysis in Wa	iter		
Template:	20050			
HERO ID:	29959			
		Ε	VALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 4: Test Organis	sms			
U	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				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	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	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the source cited likely contains more detail.
		Kinetic Calculations		······································
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
	ty Determin			• • •

* Related References: Citing Mabey, W. R., Smith, J. H., Podoll, R. T., Johnson, H. L., Mill, T., Chou, T. W., Gates, J., Waight Partridge, I., Jaber, H., Vandenberg, D. Aquatic fate data for organic priority pollutants. 1982. Not in HERO at the time of extraction.

		gada, B. S., Puhakka, J. A., Strand, S. E., Ferguson, J. F. (1999). Anaerobic transformation of 1,1,1-trichloroethane by municipal digester ation 10(4):297-305. Water
Template: HERO ID:	1747965	
		EXTRACTION
Parameter		Data
CASRN and Test Material		75-34-3; 1,1-Dichloroethane
Confidentiality, EndPoint, 7 Guideline		None; other; Experimental; other: degradation in anaerobic digester sludge
Solvent, Reactivity, Storage	•	NR; NR; NR
Radiolabel, Source, State, F	Purity	NR; Aldrich Chemical Company, Inc. Milwaukee, Wisconsin; NR; 99%
Blank and Control		Autoclaved killed controls included; Toxicity controls included using 1,1,1-trichloroethane
Oxygen and Inoculum		anaerobic; digested sludge: anaerobic sludge from a laboratory-scale digester primarily fed with WWTP sludge along with a mix of chlorinated compounds excluding TCA and other chloroethanes
Duration, Parameter, Syster Sampling Frequency pH Adjusted and pH	m, and	55 days; test mat.: Serum bottles incubated on a shaker at 150 rpm; liquid sampled at intervals ranging from every other day to every other week, depending on the rate of transformations Not Reported; 7
Concentration		Not Reported
Composition and Test Temp	perature	Reduced anaerobic mineral medium; mediumwas autoclaved and subsequently boiled while beingpurged with oxygen-free N2. NaHCO3 and Na2S.9H2O were added to the media after cooling; 35C
CEC, Water Aeration Diluti ness, and Other Design	ion, Continuous Dark-	Not reported; Not applicable; Not Reported; volatile suspended solids=1.5-2.5 g/L in bottles; lactate was used as an electron donor
Results Details Method, Re Parameter, and	1 0	Purge and trap with GC analysis with an electrolytic conductivity detector; LOD ≤ 0.5 umol/L; CH4 and CO2 analyzed by GC with a thermal conductivity detector; removal of test material; Not Reported
Direct Quantum Yield Resu Results Value, Results Star sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	>70% after 2 weeks; ca. 75% after 54 days; Not reported; 14 days; 54 days; 30% loss of test material
Results Remarks and Resul Results Mean Total Recover covery		chloroethane was the main byproduct formed and traces of ethane were detected; Not reported Not reported; Not reported

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Substa	ance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Desig	n			
	Metric 3:	Study Controls	High	Controls were included and appropriate.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

		contin	ued from prev	vious page			
Study Citation:		Chen, C., Ballapragada, B. S., Puhakka, J. A., Strand, S. E., Ferguson, J. F. (1999). Anaerobic transformation of 1,1,1-trichloroethane by municipal digester sludge. Biodegradation 10(4):297-305.					
OECD Harmonized	Biodegradation in						
Template:							
HERO ID:	1747965						
		I	EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 3: Test Conditi	ons						
	Metric 5:	Test Method Suitability	High	The method was suitable for test material.			
	Metric 6:	Testing Conditions	High	Testing conditions were reported.			
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.			
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.			
Domain 4: Tost Orcanis	1990.0						
Domain 4: Test Organis	Metric 9:	Outcome Assessment Methodology	Medium	Appropriate inoculum type.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.			
	Metrie 10.	Sumpring methods	10/11	The metre is not applicable to this study type.			
Domain 5: Outcome As	ssessment						
	Metric 11:	Test Substance Identity	High	The method is suitable for biodegradation assessment.			
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate.			
Domain 6: Confounding							
	Metric 13:	Confounding Variables	Medium	Degradation in abiotic control reported but not addressed or corrected for in viable test.			
	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	High	This metric met the criteria for high confidence as expected for this type of study.			
	Metric 16:	Statistical Methods and	High	This metric met the criteria for high confidence as expected for this type of study.			
		Kinetic Calculations	č				
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	Study results were reasonable.			
	M (10	Results	-				
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	tv Determin	ation	High				

Study Citation: OECD Harmonized	Enzminger, J. D. (1988). Anaerobic reductive dechlorination of C2 hydrocarbons in batch and fixed-film bioreactors. Biodegradation in Water				
Template: HERO ID:	5443549				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-DCA			
Confidentiality, EndPoint, 7 Guideline		None; other; Experimental; other: Non-guideline anaerobic serum bottle test			
Solvent, Reactivity, Storage		NR; NR; NR			
Radiolabel, Source, State, F Blank and Control	Purity	NR; NR; NR Antroduced statile controle. Not expected			
		Autoclaved, sterile controls; Not reported			
Oxygen and Inoculum	1	anaerobic; sewage, domestic, non-adapted: Berkeley Heights or OldbridgeTownship sewage treatment plants in New Jersey			
Duration, Parameter, Syster Sampling Frequency	m, and	9 weeks; test mat.: serum bottles with anaerobic sludge; time 0, week 1,2,3,5 from figure 4.24			
pH Adjusted and pH		Not Reported; 7			
Concentration		ca. 12 ppm			
Composition and Test Temp	perature	Two salt solutions; 35°C			
CEC, Water Aeration Diluti ness, and Other Design	•	Not reported; NA; media sparged with 30% carbon dioxide and 70% nitrogen; yes; Not Reported			
Results Details Method, Re Parameter, and		GC-ECD, Cl by HPLC anion chromatography, methane, carbon dioxide, and nitrogen by GC-thermal conductivity detector; test substance disap- pearance; Not Reported			
Direct Quantum Yield Resu Results Value, Results Star sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	100% conversion to chloroethane in 2 weeks after 3 week lag period; Not reported; 9 weeks; Not reported			
Results Remarks and Resul	ts Details	Not applicable; Not applicable			
Results Mean Total Recover covery	ry and Results per Re-	quantification by retention times and peak areas with standards prepared in n-pentane; Not applicable			

			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	The source and purity of the test substance were not reported or explicitly verified by analytical means.
Domain 2: Test Design	1			
-	Metric 3:	Study Controls	Medium	A concurrent negative control was not reported.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and were appropriate for the study.

Study Citation: OECD Harmonized Template:	Enzminger, J. D. (1988). Anaerobic reductive dechlorination of C2 hydrocarbons in batch and fixed-film bioreactors. Biodegradation in Water						
HERO ID:	5443549						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.			
	Metric 6:	Testing Conditions	Medium	Some matrix and test parameters (pH, temperature) were not explicitly reported.			
	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	Medium	Equilibrium was likely established and the system was capable of maintaining substanc concentrations.			
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	sessment						
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.			
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods were not fully reported, and the omissions may have a substantial impact on study results.			
Domain 6: Confounding	g/Variable Control						
·	Metric 13:	Confounding Variables	High	Variability in measurements were addressed.			
	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	Extraction efficiency and mass balance were not reported.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	High	The results were reasonable.			
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	tv Determin	ation	Medium				

		n, C. L., Lee, R. W. (2000). Assessment of potential for natural attenuation of chlorinated ethenes and ethanes in ground water at a amation site, Harris County, Texas. Water	
Template: HERO ID:	664358		
		EXTRACTION	
Parameter		Data	
CASRN and Test Material		Not Reported; Not Reported	
Confidentiality, EndPoint, 7 Guideline Solvent, Reactivity, Storage		No; Screening model used for assessment of reductive dechlorination in ground water; Field study with screening model BIOCHLOR; other: Natural attenuation at a petroleum chemical reclamation site Not Reported; Not Reported; Not Reported; Not Reported	
Radiolabel, Source, State, I	•	Not Reported; Contaminated groundwater; Not Reported; Not Reported	
Blank and Control	•	Field blanks, trip blanks and method blanks included; Not applicable	
Oxygen and Inoculum		Concentrations of dissolved oxygen in all well samples were a%of0.37 mg/L indicating anaerobic conditions; Not Reported: Groundwater/sediment	
Duration, Parameter, System Sampling Frequency	n, and	Not applicable; test material analysis: Ground water evaluated in Numerous Sand Channels Zone to assess natural attenuation; Ground water samples were collected from 16 wells	
pH Adjusted and pH		No; pH measured in 16 wells ranged from 6.88-7.63	
Concentration		< 10 - = 10180 µg/L	
Composition and Test Temp	perature	Groundwater was contaminated with 1,1-dichloroethene; trans-1,2-dichloroethene; 1,1-dichloroethane; 1,2-dichloroethane; trichloroethene; and 1,1,2-trichloroethane; associated chemicals identified were vinyl chloride, 1,1-DCE, trans-1,2-DCE, 1,1-DCA, 1,2-DCA, TCE, 1,1,2-TCE, PCE; Not Reported	
CEC, Water Aeration Diluti ness, and Other Design	on, Continuous Dark-	Not Reported; Not Reported; Yes; Site analysis indicated iron-III-reducing conditions, sulfate-reducing conditions, and methanogenic conditions; sediment bulk density: 2.27 g/cm3, 0.16% organic carbon; steady-state conditions assumed for simulations.	
Results Details Method, Re Parameter, and	1 0	EPA method 8260 (volatile organic compounds), EPA method 8015 (ethene, ethane, and 2-chloroethanol), EPA method 415.1 (dissolved organic carbon), EPA method 325.3 (dissolved chloride), EPA method 353.2 (dissolved nitrite plus nitrate, as N), and EPA method 375.4 (dissolved sulfate);	
Direct Quantum Yield Resu Results Value, Results Sta sults Sample Time, and Re	ndard Deviation, Re-	First-order decay constant; Not reported Not reported; Not reported; Not reported; Not reported	
stance Compartments			
Results Remarks and Resul	ts Details	Reductive dechlorination products of 1,1-DCA were not reported. BIOCHLOR indicated strong evidence for anaerobic degradation of chlorinated organic compounds.; First order decay = 0.45 per year (for upgradient segment of flowpath); 0.10 per year (for downgradient segment of flow path)	
Results Mean Total Recover covery	ry and Results per Re-	Not reported; Not reported	

			EVALUATIO	N	
Domain		Metric	Rating	Comments	
Domain 1: Test Subs	tance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	Medium	The source was reported; analytical standards were not reported.	
Domain 2: Test Desig	gn				
	Metric 3:	Study Controls	High	Appropriate blanks were included.	
			Continued on next p	bage	

Study Citation: OECD Harmonized		lamation site, Harris County, Texas.	t of potential	for natural attenuation of chlorinated ethenes and ethanes in ground water at a
Template: HERO ID:	664358			
			EVALUATIO	N
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Preparation and storage conditions of samples were not reported; however, these factors were not likely to have a substantial impact on study results.
Domain 3: Test Condition	ons			
	Metric 5:	Test Method Suitability	Medium	Non-guideline field study
	Metric 6:	Testing Conditions	High	Field conditions were analyzed and reported.
	Metric 7:	Testing Consistency	High	Testing was consitent.
	Metric 8:	System Type and Design	High	Field study; steady state can be assumed.
Domain 4: Test Organis	ms			
c	Metric 9:	Outcome Assessment Methodology	Low	Microbial viability of system was not assessed or discussed.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	Medium	Limited detail regarding the outcome assessment; BIOCHLOR was cited as the model- ing tool. Endpoint of interest was reported.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding	Variable Control			
Domain o. Comounding	Metric 13:	Confounding Variables	Medium	More sensitive analysis of transformation products would help in evaluating the poten- tial for ultimate degradation in natural groundwater systems.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Present	ation and Analysis			
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not well described, but calculated using BIOCHLOR and assumed to be first order decay.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.
Overall Qualit			High	

Study Citation: Mcnab W W, , J. R Science & Technolo		R., Narasimhan, T. N. (1994). Degradation of chlorinated hydrocarbons and groundwater geochemistry: A field study. Environmental logy 28(5):769-775.			
OECD Harmonized	Biodegradation in	Water			
Template:					
HERO ID:	1742673				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		Not Reported: 1,1-Dichloroethane			
	Tuno				
Confidentiality, EndPoint, 7 Guideline	Type,	Not Reported; other; field study; other: non-guideline: field study with degradation modeling			
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR			
Radiolabel, Source, State, F		NR; NR; NR Notes: NR			
Blank and Control		model assuming no degradation and both contaminants were present initially at 1 ppm; not applicable			
Oxygen and Inoculum		aerobic; natural water: not reported			
Duration, Parameter, Syster	m, and	not reported; not reported; not reported; not reported			
Sampling Frequency					
pH Adjusted and pH		mean = 7.6 ; not reported			
Concentration		not reported not reported - not reported 1 ppm			
Composition and Test Temp	perature	not reported; not reported			
CEC, Water Aeration Diluti ness, and Other Design	on, Continuous Dark-	not reported; not reported; field study conducted at a contaminated site: Livermore Valley of California Coast Ranges. VOCs detected in soil and ground water; predominate species: trichloroethene (4.8 ppm) and tetrachloroethene (1.1 ppm), additional contaminants detected include: 1,1-dichloroethene, cis- and trans-1,2-DCE, 1,1,1-trichloroethane, 1,1-dichloroethane, Freon-113, carbon tetrachloride, andchloroform. Up to 8 mg/L of dissolved O2 levels were measured in groundwater at the site. Model assumed 1,1,1-TCA (as exclusive contaminant) degraded into 1,1-DCE at a spatially and temporally constant rate, half-life = 2.0 yrs. Simulated ratios (based on mol/L) were predicted to evaluate degradation and retardation at the site.			
Results Details Method, Re Parameter, and Direct Quantum Yield Resu		not reported; not reported			
Results Value, Results Star sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	not reported; not reported; not reported			
Results Remarks and Results Details		Results demonstrate the difference between the two modeling cases is the change in the concentration ratios over time at individual locations; reac- tive case: an increase in the ratio is predicted for at each observation point; nonreactive case: ratio declines. According to the model, degradation effects would overwhelm retardation effects. Additionally, based on the oxidizing nature of the site and the lack of consistent detectable transfor- mation products (chloroethane), reductive dehalogenation reactions were unlikely. An increasing trend of the 1,1-DCE:1,1,1-TCA concentration ratio was observed in field data which suggests degradation of 1,1,1-TCA is occurring. Degradation of 1,1-DCE was not evaluated.; not reported			
		not reported; not reported			

			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Subs	stance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.	
			Continued on next page		

		co	ontinued from previous page				
Study Citation:		Mcnab W W, , J. R., Narasimhan, T. N. (1994). Degradation of chlorinated hydrocarbons and groundwater geochemistry: A field study. Environmental Science & Technology 28(5):769-775.					
OECD Harmonized	Biodegradation						
Femplate:	8_						
HERO ID:	1742673						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.			
Domain 2: Test Design							
2 Test Design	Metric 3:	Study Controls	High	A control was included.			
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.			
Domain 3: Test Conditi	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.			
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.			
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.			
	Metric 8:	System Type and Design	High	Field study; equilibrium is assumed.			
Domain 4: Test Organis			_				
	Metric 9:	Outcome Assessment Methodology	Low	Field study; microbial viability was not specifically evaluated.			
	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	Uninformative	Results were not reported for the target chemical.			
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.			
Domain 6: Confoundin	a/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 Presen	tation and Analysis						
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.			
	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	Uninformative	Results were not reported for target chemical.			
	Metric 18:	Results QSAR Models	High	Model was clearly described, with a defined endpoint.			
<u> </u>				 The second s			
Overall Quali	ty Determi	nation	Uninformative				

Study Citation: OECD Harmonized	NCBI, (2020). Pub Biodegradation in	Chem database: compound summary: 1,1-dichloroethane. Water			
Template: HERO ID:	6629204				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-DCA			
Confidentiality, EndPoint, 7 Guideline	71	None; screening test; Experimental; other: Guideline not specified; aerobic static-screening-flask test method			
Solvent, Reactivity, Storage	-	NR; NR; NR			
Radiolabel, Source, State, I	Purity	NR; NR; NR			
Blank and Control		Not reported; Not reported			
Oxygen and Inoculum		aerobic; sewage, domestic (adaptation not specified): Municipal wastewater sewage inoculum			
Duration, Parameter, Syster Sampling Frequency	m, and	7 days; test mat.: Not reported; Not reported			
pH Adjusted and pH		Not Reported; Not reported			
Concentration		5 - 10 ppm			
Composition and Test Tem	perature	Not reported; Not reported			
CEC, Water Aeration Dilutiness, and Other Design	on, Continuous Dark-	Not reported; Not reported; Not Reported; Not Reported			
Results Details Method, Re Parameter, and	1 0	Not reported; Not reported; Not Reported			
Direct Quantum Yield Resu Results Value, Results Sta sults Sample Time, and Ro stance Compartments	ndard Deviation, Re-	50 and 29%; Not reported; 7 days; Not reported			
Results Remarks and Resul	ts Details	50 and 29%/7 d for 5 and 10 ppm test substance. 19 and 4% evaporation also observed during the test period.; Not reported			
Results Mean Total Recove covery	ry and Results per Re-	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	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.
	Metric 4:	Test Substance Stability	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.

Domain 3: Test Conditions

Study Citation: OECD Harmonized	NCBI, (2020). Pu Biodegradation in	bChem database: compound summary: 1, Water	,1-dichloroethane.	
Femplate: HERO ID:	6629204			
HERO ID;	0029204			
D ·			EVALUATION	
Domain	M	Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
Domain 4: Test Organis	sms			
C	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were limited; however, additional information may be included in the primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome As	sessment			
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 6: Confounding	v/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	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	High	The outcome of interest was reported clearly.
	Metric 15: Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	metric 10.	Kinetic Calculations	wiedium	Not reported in this secondary source, the primary source fixery contains more detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information in the secondary source, the plausibility of the study results cannot be determined.
	Metric 18:	OSAR Models	N/A	This metric is not applicable to this type of study.

* Related References: Tabak HH et al; J Water Pollut Contr Fed 53: 1503-18 (1981)

Study Citation: OECD Harmonized	NCBI, (2020). Pub Biodegradation in	bChem database: compound summary: 1,1-dichloroethane. Water	
Template: HERO ID:	6629204		
		EXTRACTION	
Parameter		Data	
CASRN and Test Material		75-34-3; 1,1-DCA	
Confidentiality, EndPoint, 7 Guideline		None; screening test; Experimental; other: Manometric respirometry test	
Solvent, Reactivity, Storage		NR; NR; NR	
Radiolabel, Source, State, I	Purity	NR; NR; NR	
Blank and Control		Not reported; Not reported	
Oxygen and Inoculum		aerobic; other:: Inoculum not acclimated prior to test	
Duration, Parameter, Syster Sampling Frequency	n, and	26 days; test mat.: Not reported; Not reported	
pH Adjusted and pH		Not Reported; Not reported	
Concentration		50 mg/L	
Composition and Test Tem		Not reported; Not reported	
CEC, Water Aeration Diluti ness, and Other Design	on, Continuous Dark-	Not reported; Not reported; Not Reported; Not reported	
Results Details Method, Re Parameter, and Direct Quantum Yield Resu	1 0	Not reported; Not reported; Not Reported	
Results Value, Results Sta sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	25%; Not reported; 26 days; Not reported	
Results Remarks and Resul	ts Details	Not reported; Not reported	
Results Mean Total Recove covery	ry and Results per Re-	Not reported; Not reported	

	EVALUATION	
Metric	Rating	Comments
Test Substance Identity	High	The test substance was identified by name.
Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Study Controls	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.
Test Substance Stability	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.
Test Method Suitability	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.
С	ontinued on next page	
	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability	MetricRatingTest Substance Identity Test Substance PurityHigh MediumStudy ControlsMediumTest Substance StabilityMedium

Study Citation: OECD Harmonized Template:	NCBI, (2020). Pu Biodegradation in	bChem database: compound summary: 1 Water	1,1-dichloroethane.	
HERO ID:	6629204			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
	Metric 8:	System Type and Design	Medium	Details regarding this metric were not reported; however, additional information may b included in the primary source.
Domain 4: Test Organisi	ns			
	Metric 9:	Outcome Assessment Methodology	Medium	Details regarding this metric were limited; however, additional information may be included in the primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Ass	sessment			
	Metric 11:	Test Substance Identity	Medium	Details regarding this metric were limited; however, additional information may be included in the primary source.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 6: Confounding	/Variable Control			
2 onian of contouriang	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presenta	ation and Analysis			
	Metric 15:	Data Reporting	High	The outcome of interest was reported clearly.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information in the secondary source, the plausibility of the study results cannot be determined.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.
Overall Qualit	v Determin	ation	Medium	

... continued from previous page

* Related References: Lapertot ME, Pulgarin C; Chemosphere 65: 682-90 (2006)

Study Citation:		ai, H. S. (1999). Biodegradation rates for fuel hydrocarbons and chlorinated solvents in groundwater. Bioremediation Journal 3(4):337-			
OECD Harmonized 362. Biodegradation		Water			
Template:	blodegradation in				
HERO ID:	5442956				
		EVEDACEION			
Parameter		EXTRACTION Data			
r al alletel		Data			
CASRN and Test Material		Not Reported; dichloroethane (all isomers)			
Confidentiality, EndPoint, 7	Type	No; Not Reported; experimental; other			
Guideline	· , pc,	no, not reported, experimental, outer			
Solvent, Reactivity, Storage	e, Stability	Not Reported; Not Reported; Not Reported; Not Reported			
Radiolabel, Source, State, F	Purity	Not Reported; Not Reported; Not Reported; Not Reported			
Blank and Control		Not Reported; Not Reported			
Oxygen and Inoculum		Not Reported; Not Reported			
Duration, Parameter, Syster	m, and	Not Reported; Not Reported: Not Reported; Not Reported			
Sampling Frequency					
pH Adjusted and pH		Not Reported; Not Reported			
Concentration		Not Reported			
Composition and Test Temp		Not Reported; Not Reported			
CEC, Water Aeration Diluti ness, and Other Design	ion, Continuous Dark-	Not Reported; Not Reported; Not Reported; Not Reported			
Results Details Method, Re	sults per Degradation	Not Reported; Not Reported; Not Reported			
Parameter, and	Suits per Degradation	Not Reported, Not Reported			
Direct Quantum Yield Resu	ults				
Results Value, Results Standard Deviation, Re-		Not Reported; Not Reported; Not Reported; Not Reported			
sults Sample Time, and Re	esults Reference Sub-				
stance Compartments	to Dataila	Comments for all statics for DCA: 25 actors more descence officients desired from all statics = 0.017 days 1 stand = 1.1.1.1.1.1.0.027 days 1.004			
Results Remarks and Resul	us Details	Summary for all studies for DCA: 25 rates, mean decay coefficients derived from all studies = 0.017 day-1standard deviation = 0.036 day-1; 90th percentile = 0.046 day-1; geometric mean = 0.001 day-1; first-order rate coefficient range = 0 day-1 to 0.131 day-1; Not Reported			
Results Mean Total Recover	ry and Results per Re-	Not Reported; Not Reported			
Results Mean Total Recovery and Results per Re- covery		······································			

			EVALUATION	
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	Not reported in this secondary source; the primary sources likely contains more detail
Domain 2: Test Design	n			
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary sources likely contains more detail
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary sources likely contains more detail

Domain 3: Test Conditions

Study Citation:	Suarez, M. P., Rifai, H. S. (1999). Biodegradation rates for fuel hydrocarbons and chlorinated solvents in groundwater. Bioremediation Journal 3(4):337- 362. Biodegradation in Water			
DECD Harmonized Femplate:				
HERO ID:	5442956			
		E	VALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
		1 0		
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) or interest.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.
		Exposure		
Domain 7: Data Presen	tation and Analysi	s		
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary sources likely contains more detail.
	Metric 16:	Statistical Methods and	Medium	Statistical methods or kinetic calculations were clearly described and address the
		Kinetic Calculations		dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	High	The study results were reasonable.
	Metric 18:	Results QSAR Models	N/A	A QSAR model was not reported.
Overall Quali	ty Dotormi	nation	Medium	

Study Citation: OECD Harmonized	Pollution Control I	ak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. Journal of Water ution Control Federation 53(10):1503-1518.				
Template:	Biodegradation in	Water				
HERO ID:	9861					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1.1-Dichloroethane				
Confidentiality, EndPoint, T Guideline	ſype,	None; screening test; Experimental; other: Biodegradation in domestic wastewater, static-culture flask-screening				
Solvent, Reactivity, Storage	, Stability	NR; NR; NR				
Radiolabel, Source, State, P	Purity	NR; NR; NR				
Blank and Control		Synthetic medium containing 5mg yeast extract; Not reported				
Oxygen and Inoculum		aerobic; sewage, domestic, non-adapted: Weekly "subcultures" involved adding fresh test samples to existing cultures to test for inoculum adapta-				
Duration, Parameter, System Sampling Frequency	n, and	tion. 28 days (includes 7 day static incubation and 3 weekly subcultures); test mat.: Static-culture in 250 mL Erlenmeyer flask.; Days 7, 14, 21, and 28				
pH Adjusted and pH		Not Reported; Not reported				
Concentration		5 - 10 mg/L				
Composition and Test Temp	perature	BOD dilution water with 5 mg/L yeast extract; 25°C				
CEC, Water Aeration Dilutioness, and Other Design	on, Continuous Dark-	Not reported; Not reported; yes; Homogenous suspensions of the test substance in the chilled synthetic medium were prepared in a heavy duty blender for 2 minutes. Replicate studies with 5 mg/L and 10 mg/L substrate.				
Results Details Method, Res Parameter, and Direct Quantum Yield Resu		GC and TOC determinations. GC LOD: 0.1 mg/L; Average loss of test substance after 7 days; Not Reported				
Results Value, Results Star sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	50-91% (at 5 mg/L); 29-83% (at 10 mg/L); Not reported; 7 days; Not reported				
Results Remarks and Result Results Mean Total Recover covery		Significant degradation with rapid adaptation; at 25°C: 19% volatilization loss at 5mg/l, 4% volatilization loss at 10mg/l Not Reported; Not Reported				

			EVALUATIO	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	N/A	The test substance purity was not reported; however, the omission is unlikely to have an impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were used without inoculum and without substrate.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.

Study Citation:		uave, S. A., Mashni, C. I., Barth, E. F. (1 Federation 53(10):1503-1518.	981). Biodeg	radability studies with organic priority pollutant compounds. Journal of Water
OECD Harmonized Template:	Biodegradation in			
HERO ID:	9861			
		ŀ	EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its aqueous solubility which may have had an im- pact on the study results.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	N/A	The inoculum type was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome As				
	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: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Low	Sources of uncertainty were not reported which may impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	High	The data reporting was appropriate, percentage removal of the test substance was re- ported, and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported; however, the omission is unlikely to have a sub- stantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quali	tv Determin	ation	High	

Study Citation: OECD Harmonized	Van Eekert, M. H., and Biotechnology Biodegradation in				
Template: HERO ID:	645784				
	010701	EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, 7 Guideline	• •	None; other; Experimental; other: Static batch experiments using methanogenic sludge for the dechlorination of chloroethanes.			
Solvent, Reactivity, Storage		NR; NR; NR			
Radiolabel, Source, State, I	Purity	NR; E. Merck (Amsterdam, The Netherlands); NR; NR; p.a. quality			
Blank and Control		Autoclaved sludge and no sludge controls included; Not reported			
Oxygen and Inoculum		anaerobic; anaerobic sludge: Granular sludge: unadapted methanogenic consortium grown in UASB reactor, methanol as the carbon source.			
Duration, Parameter, System, and Sampling Frequency		25 days; test mat.: Sealed bottles; Not reported			
pH Adjusted and pH		Not Reported; 7.2-7.3			
Concentration		1500 other			
Composition and Test Tem	perature	Methanol: 71 mM; test substance in acetone: 1500 nmol;; 30°C			
CEC, Water Aeration Diluti ness, and Other Design	on, Continuous Dark-	Not reported; No; Not reported; Amount of sludge: 79.5 mg VSS/batch (living sludge); 73.1 mg VSS/batch (autoclaved sludge)			
Results Details Method, Re Parameter, and Direct Quantum Yield Resu	r c	Total mass measured by head-space analysis using GC/FID; %Ct/C0: concentration after time t divided by concentration at time 0; Not Reported			
Results Value, Results Sta sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	31.1; Not reported; Not reported; 10.1%, Removal rate constant=5 nmol/day, 0.1 umol g/VSS day; 0% Removal rate constant=0 nmol/day			
Results Remarks and Resul	ts Details	Transformation products, main: C2H5Cl (14.5%); minor: C2H6 (trace); no products observed in the autoclaved sludge; Removal rate constant=20 nmol/day; 0.3 umol g/VSS day			
Results Mean Total Recove covery	ry and Results per Re-	Not reported; Not reported			

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

Study Citation:	Van Eekert, M. H., Stams, A. J., Field, J. A. (1999). Gratuitous dechlorination of chloroethanes by methanogenic granular sludge. Applied Microbiology and Biotechnology 51(1):46-52.					
OECD Harmonized	Biodegradation ir					
Template:	Diodegradation	i water				
HERO ID:	645784					
	EVALUATION					
Domain		Metric	Rating	Comments		
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.		
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.		
Domain 4: Test Organis	ms					
Domain 1. Test organic	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.		
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.		
Domain 5: Outcome As						
Domain 5: Outcome As	Metric 11:	Test Substance Identity	High			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.		
	Metric 12:	Test Substance Purity	Medium	Details omitted; however, the lack of data is not likely to hinder the interpretation of the results.		
Domain 6: Confounding	v/Variable Control					
Domain of Comountain	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.		
	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	High	Statistical analysis reported and acceptable.		
		Kinetic Calculations	0	, <u>1</u> ,		
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	• D-4	- 4	High			

Study Citation: OECD Harmonized	Vargas, C., Ahlert, R. C. (1987). Anaerobic degradation of chlorinated solvents. Journal of Water Pollution Control Federation 59(11):964-968. Biodegradation in Water						
Template:							
HERO ID:	1946074						
		EXTRACTION					
Parameter		Data					
CASRN and Test Material		75-34-3; 1,1-Dichloroethane					
Confidentiality, EndPoint, T Guideline	Type,	None; other; Experimental; other: Batch and semi-batch anaerobic studies					
Solvent, Reactivity, Storage	, Stability	NR; NR; NR					
Radiolabel, Source, State, P	Purity	NR; NR; NR					
Blank and Control		unspiked controls included; No significant inhibition was observed at concentrations ranging from 0.58-35 mg/L in batch studies; Half-kill dose from batch reactions = 26.1 mg/L					
Oxygen and Inoculum		anaerobic; anaerobic bacteria: Mixed anaerobic culture obtained from Berkley Heights Sewage Treatment Plant; acclimation was achieved after ca. 5 months					
Duration, Parameter, System Sampling Frequency	n, and	Batch: 1-2 weeks; semi-batch: 23 days; other; theoretical gas production (CH4 + CO2): 100 mL amber serum bottles; gas production measured daily					
pH Adjusted and pH		Not Reported; near neutral (adjusted as necessary with 1 N NaOH)					
Concentration		0.58 - 35 mg/L					
Composition and Test Temp	perature	1g yeast extract, 2.96g NH4Cl, 0.34 g KH2PO4, I mg resazurin, 0.5 g cysteine hydrochloride, 1 mL trace metal solution, 4 mL absolute ethanol; Not reported					
CEC, Water Aeration Dilution ness, and Other Design	on, Continuous Dark-	Not reported; Not reported; Not Reported; reactors were fed ethanol after cessation of gas production					
Results Details Method, Res Parameter, and Direct Quantum Yield Resu		GC; CH4 and CO2 analyzed with a thermal conductivity detector; Not reported; Not reported					
Results Value, Results Star sults Sample Time, and Re stance Compartments		Not reported; Not reported; Not reported; Not reported					
Results Remarks and Results Details		Daily gas production (mL/day liter) depicted in graphs; specific quantitative results not reported. In batch tests DCE daily gas production followed controls with little variation and inhibition was insignificant at all concentrations tested. In semi-batch acclimation tests gas production ceased after 23 days at test substance concentrations of 25, 30, and 35 mg/L at which time ethanol feed was discontinued to the three reactors and they were set aside. Growth occurred for 37 days at concentrations under 21 mg/L, increased inhibition was observed at the higher concentrations.; Mixed anaerobic population can degrade or acclimate; no apparent inhibition was observed up to 35 mg/L					
Results Mean Total Recover covery	ry and Results per Re-	Not reported; Not reported					

			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Subs	stance				
	Metric 1:	Test Substance Identity	High	Test substance was definitively identified.	
	Metric 2:	Test Substance Purity	Uninformative	Test substance source and purity were not reported.	

Domain 2: Test Design

Study Citation: OECD Harmonized Template:	Vargas, C., Ahlert Biodegradation in		chlorinated solvents. Journal o	of Water Pollution Control Federation 59(11):964-968.
HERO ID:	1946074			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditi	ons			
	Metric 5:	Test Method Suitability	Uninformative	The use of an ethanol fed system and acclimated culture inoculum greatly limits the results unacceptable for use to determine environmental fate.
	Metric 6:	Testing Conditions	Medium	Test conditions were not fully reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	The system type and design details were limited.
Domain 4: Test Organis	sms			
e	Metric 9:	Outcome Assessment Methodology	Low	The selected test organism is not typical for environmental fate degradation.
	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	Uninformative	The assessment methodology did not report the outcome of interest. Detail in graphs for 2/10 concentrations tested, limited information for informative quantitative results.
	Metric 12:	Test Substance Purity	Low	Sampling details were omitted.
Domain 6: Confounding	v/Variable Control			
Domain o. Comounding	Metric 13:	Confounding Variables	Low	Other loss processes such as adsorption and volatilization not discussed/addressed.
	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	Uninformative	Target chemical concentrations, extraction efficiency, percent recovery, or mass balance were not 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	Uninformative	There are serious flaws that make this study unusable.
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
	ty Determina		Uninformative	

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Study Citation: OECD Harmonized	•	, Cameron, B. A. (2001). Evaluating degradation rates of chlorinated organics in groundwater using analytical models. Environmental hemistry 20(9):1909-1915. Water			
Template:	8				
HERO ID:	1937750				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3: 1.1-Dichloroethane			
Confidentiality, EndPoint, Guideline Solvent, Reactivity, Storage	• •	None; other; Calculation; other: Mass-balance box model; Monitoring of contaminants at a location in an landfill to evaluate and model their transformation rates NR: NR: NR			
Radiolabel, Source, State, I		NR; NR; NR			
Blank and Control		Not reported; Not reported			
Oxygen and Inoculum		aerobic; other:: landfill site in the Reading Prong of southeastern PA			
Duration, Parameter, System, and Sampling Frequency		Not reported; test mat.: Not reported; Not reported			
pH Adjusted and pH		Not Reported; field=6.11; lab=6.43			
Concentration		Not Reported			
Composition and Test Tem	perature	Not reported; Not reported			
CEC, Water Aeration Dilutiness, and Other Design	ion, Continuous Dark-	Not reported; Not reported; Not Reported; Mass-balance box model			
Results Details Method, Re Parameter, and Direct Quantum Yield Resu		Not reported; Half-life; Not Reported			
Results Value, Results Sta sults Sample Time, and Re stance Compartments	ndard Deviation, Re-	115.0 days; Not reported; Not reported; Not reported			
Results Remarks and Resul	lts Details	Mass-balance box model used to characterize changes in solute composition due to advective loss, adsorption and pseudo-first-order degradati based on data from monitoring at a single site, assuming steady state, a single completely dissolved compound initially present, all up-gradi inflow solute concentration=zero, dispersive effects remain ca. constant through time; pseudo-first-order rate constant=6.0E-3/day			
Results Mean Total Recove covery	ry and Results per Re-	Not reported; Modeled Koc was included in the evaluation of transformation to account for sorption; estimated Koc=1.68			

			EVALUATIO	N	
Domain		Metric	Rating	Comments	
Domain 1: Test Subs	stance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.	
Domain 2: Test Desi	gn				
	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.	

Study Citation:			radation rates	of chlorinated organics in groundwater using analytical models. Environmental			
	Toxicology and Chemistry 20(9):1909-1915.						
OECD Harmonized	Biodegradation in Water						
Template:							
HERO ID:	1937750						
		ŀ	VALUATIO	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	N/A	The metric is not applicable to this study type.			
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.			
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.			
Domain 4: Test Organis	sms						
0	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							
	Metric 11:	Test Substance Identity	N/A	The outcome assessment methodology addressed or reported the intended outcome of interest.			
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.			
Domain 6: Confounding	Wariable Control						
Domain 0. Comounding	Metric 13:	Confounding Variables	High	Sources of uncertainty in the model predictions was reported and accounted for in the			
				data evaluation.			
	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	Detail on monitoring data used or the basis of the model was not reported.			
	Metric 16:	Statistical Methods and	Low	Model calculations were described with limited detail; statistical analysis of monitoring			
		Kinetic Calculations		data was not included.			
Domain 8: Other							
2 Sinum 0. Outer	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 Dotormin	ation	High				

* Related References: HSDB

Study Citation:		004). [Redacted] Twins Inn site remediation treatability study.		
OECD Harmonized	Biodegradation in	Sediment		
Template: HERO ID:	10609984			
HERO ID;	10009984			
_		EXTRACTION		
Parameter		Data		
CASRN and Test Material		Not Reported; 1,1-dichloroethane		
Confidentiality, EndPoint, 7	Tuno	yes; inherent biodegradability; experimental; other: intrinsic in-situ aerobic biodegradation		
Guideline	Type,	yes, innerent biodegradabinty; experimentar, other: intrinsic in-situ aerobic biodegradation		
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR		
Radiolabel, Source, State, I	Purity	NR; Sigma-Aldrich, St. Louis, Missouri; NR; NR		
Oxygen and Inoculum		aerobic; natural water / sediment: Groundwater and sediment core samples from downgradient plume source. Twins Inn site, Arvada, Colorado.		
Duration, Parameter, System	m, and	12 months; test mat; incubation temperature: 20°C; glass serum bottles; sequential sampling		
Sampling Frequency				
Results Sample Time, C	compartment, Sludge	0, 2, 4, 6, 9, 12 months; groundwater/sediment; sediment: core samples; groundwater; not reported; not reported		
Compartment, Water Compartment, CEC, and pl	ч			
Control Dark, Control, and		yes; not reported; heat and biocide sterilized		
Concentration		> 1000 ug/L		
Analytical Method, Analyt	tical Details, and Re-	GC/MS; Not Reported; test mat.		
sults Per Degredation Parar	neter			
Results Remarks		first order rate constant: 0.230 L/month		
Halflife, Standard Deviation Results, Reference		92 days; not reported; 14C-TCE; Not Reported		
Substance Results, and	Reference Substance			
Compartment Results Results Details		half-life in abiotic control 126 days; first order rate constant 0.167 L/month		
Mean Total Recovery Resul	ts and Results Per Re-	not reported		
covery	as and results I of Re-	no reported, not reported		
Results Value, Direct Qua	antum Yield Results,	not reported; not reported; no dechlorination products were observed		
and Transformation Produc	ets			

			EVALUATIO	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	Medium	The test substance source was reported, but the test substance purity was not reported;
				however, the omission was not likely to have a substantial impact on the study results.
Domain 2: Test Design	L			
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
		(Continued on next p	Dage

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Study Citation:	study.						
OECD Harmonized Template:	Biodegradation in Sediment						
HERO ID:	10609984						
	100000001			T			
Domain		Metric	EVALUATION Rating	Comments			
Domain		Metric	Kating	Comments			
Domain 3: Test Conditio	ns						
Domain 5. Test Conditio	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.			
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to de-			
	incure o.	resting conditions	Weddulli	termine that the omissions were not likely to have a substantial impact on study results.			
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these dis-			
		с .		crepancies were not likely to have a substantial impact on study results.			
	Metric 8:	System Type and Design	N/A	Rating of this factor is not applicable to this kind of information.			
Domain 4: Test Organisi			-				
	Metric 9:	Outcome Assessment Methodology	Low	An inoculum that was pre-adapted to the test substance was used for a biodegradation			
	Metric 10:	Sampling Methods	N/A	rate study. Rating of this factor is not applicable to this kind of information.			
	Metile 10.	Sumpring Methods	1.071	Rung of this factor is not appreadle to this kind of miorination.			
Domain 5: Outcome Ass	sessment						
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differ-			
		2		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	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			
				19200			
Domain 6: Confounding	/Variable Control						
C	Metric 13:	Confounding Variables	Medium	Variability and uncertainty were not explicitly addressed.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.			
		Exposure					
Domain 7: Data Presenta	-		M ¹				
	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	Medium	Kinetic calculations were not clearly described.			
		Kinetic Calculations					
Domain 8: Other	N 17		M ¹				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.			
	Metric 18:	Results QSAR Models	N/A	Rating of this factor is not applicable to this kind of information.			
		2	- 1/ - 1				

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		continued from previous page		
Study Citation: OECD Harmonized Template:	Dow Chemical, (2004). [Redacted] Twins Inn Biodegradation in Sediment	site remediation treatability study.		
HERO ID:	10609984			
		EVALUATION		
Domain	Metric	Rating	Comments	
Overall Quali	ty Determination			

ch		s, E. A. (2006). A 1,1,1-trichloroethane-degrading anaerobic mixed microbial culture enhances biotransformation of mixtures of ad ethanes. Applied and Environmental Microbiology 72(12):7849.
Template:	159218	
HERO ID: 10	139218	
Parameter	n	EXTRACTION
	D	
CASRN and Test Material	75	5-34-3; 1,1-Dichloroethane
Confidentiality, EndPoint, Type, Guideline	No	one; Screening; Experimental; other: microcosm degradation time course experiment
Solvent, Reactivity, Storage, Sta	bility N	R; NR; NR
Radiolabel, Source, State, Purity	N	R; NR; NR; NR
Oxygen and Inoculum	tri me	naerobic; natural sediment: Groundwater and solids were collected from an industrial area contaminated with high concentrations of 1,1,1- ichloroethane and trichloroethene. Subsurface and cores were collected in the saturated anoxic zone at a depth of approximately 30 feet. Enrich- ent culture, "MS", a mixed anaerobic microbial culture that reductivelydechlorinates 1,1,1-TCA to 1,1-DCA and CA, was prepared from this
Duration, Parameter, System, an Sampling Frequency Results Sample Time, Compa Compartment, Water Compartment, CEC, and pH	d 14 we	nicrocosm. 4 days; Test material; 45 mL screw top vials with 10 mL of mineral medium and 10 mL of MS culture were amended with 1,1-DCA.; 10 samples vere taken over 12 days (figure 1B). IR; NR; NR; NR; NR; NR
Control Dark, Control, and Blan	k N	R; NR; no-electron-acceptor controls
Concentration		0 mg/L
Analytical Method, Analytical sults Per Degredation Parameter Results Remarks	Details, and Re- Ge de 1, In	C-FID; Headspace or liquid samples were analyzed using an HP 5890A gas chromatograph fitted with a GSQ column and a flame ionization etector.; Test material 1-DCA was reductively dechlorinated to chloroethane in 12 days with no lag. Methanogenesis occurred throughout the 1,1-DCA degradation. 1,1,1-TCA amended bottles, 1,1-DCA was reductively dechlorinated to CA in 14 days, after the 10 days where 1,1,-TCA was reductively echlorinated to 1,1-DCA (with no lag).
Halflife, Standard Deviation Re Substance Results, and Refer Compartment Results	sults, Reference Aj	pproximately 3-4 days (derived from graph).; reported in figures; Not Reported; Not Reported
Results Details		fot Reported
Mean Total Recovery Results and covery		tot Reported; Not Reported
Results Value, Direct Quantum and Transformation Products	n Yield Results, No	ot Reported; Not Reported; Chloroethane

EVALUATION							
Domain		Metric	Rating	Comments			
Domain 1: Test Subs	stance						
	Metric 1:	Test Substance Identity	High	The test substance was identified using established nomenclature.			
	Metric 2:	Test Substance Purity	High	The test substance was verified by analytical means.			

Domain 2: Test Design

Study Citation: OECD Harmonized	Grostern, A., Edwards, E. A. (2006). A 1,1,1-trichloroethane-degrading anaerobic mixed microbial culture enhances biotransformation of mixtures chlorinated ethenes and ethanes. Applied and Environmental Microbiology 72(12):7849. Biodegradation in Sediment				
Template:					
HERO ID:	10159218				
			EVALUATION	N	
Domain		Metric	Rating	Comments	
	Metric 3:	Study Controls	High	Appropriate controls were used.	
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance storage conditions were not reported; however, the omissions are unlikely impact on the 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	Medium	Some details regarding the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.	
	Metric 7:	Testing Consistency	High	There were no reported changes across sample groups.	
	Metric 8:	System Type and Design	Medium	Some details regarding the system type and design were not reported; however, the omissions are unlikely to have a substantial impact on the study results.	
Domain 4: Test Organis	ms				
-	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and appropriate for the study type.	
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.	
Domain 5: Outcome As	sessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.	
	Metric 12:	Test Substance Purity	Medium	Some details regarding the sampling methods were not reported; however, the omissions are unlikely to have a substantial impact on the study results.	
Domain 6: Confounding	g/Variable Control				
·	Metric 13:	Confounding Variables	High	Uncertainty in the test substance and degradation product concentrations were reported and acceptable.	
	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	High	The analytical method was reported and appropriate. Test substance and degradation product concentrations were reported graphically.	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not reported; however, the omissions are unlikely to impact the study results.	
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.	

		continued from previous page					
Study Citation:	Grostern, A., Edwards, E. A. (2006). A 1,1,1-trichloroethane-degrading anaerobic mixed microbial culture enhances biotransformation of mixtures of chlorinated ethenes and ethanes. Applied and Environmental Microbiology 72(12):7849.						
OECD Harmonized	Biodegradation in Sediment						
Template:							
HERO ID:	10159218						
		EVALUATION					
Domain	Metric	Rating	Comments				
Overall Quali	Overall Quality Determination High						

de Sc	 Hamonts, K., Kuhn, T., Maesen, M., Bronders, J., Lookman, R., Kalka, H., Diels, L., Meckenstock, R. U., Springael, D., Dejonghe, W. (2009). I determining the attenuation of chlorinated aliphatic hydrocarbons in eutrohic river sediment impacted by discharging polluted groundwater. Environ Science & Technology 43(14):5270-5275. Biodegradation in Sediment 						
Template: HERO ID: 11	11147650						
	11147658						
Parameter		Data	EXTRACTIO	21N			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane					
Confidentiality, EndPoint, Type,		None; Screening test; Experimental; o	other: Batch biodegrad	dation test/microcosm study			
Guideline Solvent, Reactivity, Storage, Sta	hility	NR; NR; NR; NR					
Radiolabel, Source, State, Purity	•	NR; NR; NR; NR					
Oxygen and Inoculum Duration, Parameter, System, an Sampling Frequency			ydrocarbon polluted g				
Results Sample Time, Compa Compartment, Water Compartment, CEC, and pH	artment, Sludge	NR; Not Reported; Not Reported; Not Reported; NR					
Control Dark, Control, and Blan	k	Yes; Formaldehyde spiked abiotic controls were used; Not Reported					
Concentration		0.19 - 0.27 μmol/L					
Analytical Method, Analytical 1 ults Per Degredation Parameter		GC-MS; Thermo Finnigan Trace GC-MS equipped with a DB5-MS column. Headspace analysis was performed.; Test material					
Results Remarks Halflife, Standard Deviation Re	culto Deference	Highest organic carbon content in the upper layer (0-20 cm) correlated with the fastest biodegradation. NR; NR; Not Reported; Not Reported					
Substance Results, and Refer		NK, NK, NOI Reported, Noi Reported	I				
Results Details		Not Reported					
Mean Total Recovery Results and	d Results Per Re-	Not Reported; Not Reported					
covery Results Value, Direct Quantun and Transformation Products	n Yield Results,	Reductive dechlorination of 0.19-0.27 uM 1,1-DCA was observed within 13-46 days at 9 of the 12 testing positions.; Not Reported; Chloroethane was the observed transformation product.					
			EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 1: Test Substance	. • •		*** 1				
	etric 1:	Test Substance Identity	High	The test substance was identified using established nomenclature.			
M	etric 2:	Test Substance Purity	High	The test substance was verified by appropriate analytical means.			
Domain 2: Test Design							
-	etric 3:	Study Controls	High	A abiotic control was used.			
		С	ontinued on next	page			

... continued from previous page

Study Citation: Hamonts, K., Kuhn, T., Maesen, M., Bronders, J., Lookman, R., Kalka, H., Diels, L., Meckenstock, R. U., Springael, D., Dejonghe, W. (2009). Factors determining the attenuation of chlorinated aliphatic hydrocarbons in eutrohic river sediment impacted by discharging polluted groundwater. Environmental Science & Technology 43(14):5270-5275. **OECD Harmonized Biodegradation in Sediment Template: HERO ID:** 11147658 **EVALUATION** Domain Metric Rating Comments Metric 4: Test Substance Stability High The details regarding the stability, homogeneity, preparation and storage conditions of the samples containing the test substance were reported and appropriate. Domain 3: Test Conditions Metric 5: Test Method Suitability High The test method was suitable for the test substance. Metric 6: **Testing Conditions** High Testing conditions were reported and appropriate. Metric 7: Testing Consistency High Testing conditions were consistent across sample groups and triplicate samples were tested. Metric 8: System Type and Design Medium Some details regarding the system type and design were not reported; however, the omissions are unlikely to have a substantial impact on the study results. Domain 4: Test Organisms Metric 9: Outcome Assessment Methodology High The inoculum was described and appropriate for the study type. Metric 10: Sampling Methods N/A The metric is not applicable to the study type. Domain 5: Outcome Assessment Metric 11: Test Substance Identity High The outcome assessment methodology addressed the intended outcome of interest. Metric 12: Test Substance Purity High Details regarding the sampling methods were reported and appropriate for the study type. Domain 6: Confounding/Variable Control Metric 13: Confounding Variables Medium Sources of uncertainty in the measurements were not discussed; however, the omissions are unlikely to have a substantial impact on the study results. Metric 14: Health Outcomes Unrelated to N/A The metric is not applicable to the study type. Exposure Domain 7: Data Presentation and Analysis Metric 15: Data Reporting Medium Some details, such as the target chemical concentrations in individual microcosms were not provided; however, an appropriate analytical method was used. Metric 16: Statistical Methods and Low Statistical analysis or kinetic calculations were not described clearly. 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.

		continued from previous page					
Study Citation:	Hamonts, K., Kuhn, T., Maesen, M., Bronders, J., Lookman, R., Kalka, H., Diels, L., Meckenstock, R. U., Springael, D., Dejonghe, W. (2009). Factors determining the attenuation of chlorinated aliphatic hydrocarbons in eutrohic river sediment impacted by discharging polluted groundwater. Environmental Science & Technology 43(14):5270-5275.						
OECD Harmonized	Biodegradation in Sediment						
Template:							
HERO ID:	11147658						
		EVALUATION					
Domain	Metric Rating Comments						
Overall Quali	Overall Quality Determination High						

•		rremans, B., De Ceuster, T., Gemoets, J., Diels, L. (2005). Effects of carbon source amendment on the anaerobic degradation of 1,1,1-					
OECD Harmonized		trichloroethane (TCA) in a contaminated aquifer. Water, Air, and Soil Pollution 166(1-4):197-216.					
	Biodegradation in	Seument					
Template: HERO ID:	1739430						
ILKO ID.	1757450						
D (EXTRACTION					
Parameter		Data					
CASRN and Test Material		Not Reported; 1,1-Dichloroethane					
Confidentiality, EndPoint, 7	Type,	none; other; experimental; other: Non-guideline: laboratory microcosm					
Guideline	•••						
Solvent, Reactivity, Storage	•	NR; NR; NR					
Radiolabel, Source, State, F	Purity	NR; degradation product of 1,1,1-tricholroethane; NR; NR Notes: NR					
Oxygen and Inoculum		anaerobic; natural water / sediment: freshwater: Samples from a TCA-contaminated site were collected for use in laboratory microcosm consisting					
		of 40 g aquifer material and 40 mL groundwater; microcosms tested with lactate, lactate and nutrients, and molasses amendments at ambient					
Duration Documentar Courts	n and	temperatures. Living and dead controls were included.					
Duration, Parameter, Syster Sampling Frequency	n, and	10 months; test mat.; anaerobic glove-box: 150 mL glass vials with butyl/PFTE grey septum and crimp-cap seals; not reported					
Results Sample Time, C	ompartment Sludge	0, 1.5, 4, 6, 10 months; Not Reported; aquifer material; groundwater; not reported; Reported as 'near-neutral', measured several times during the					
Compartment, Water	ompartment, Studge	test with a pH meter					
Compartment, CEC, and pH	ł						
Control Dark, Control, and	Blank	not reported; not reported; sterile control: addition of HgCl2 in demineralized water; living control also included (40 g aquifer material and 40 mL					
		groundwater); 120 mg of formaldehyde added after 6 months as additional biocide					
Concentration		Not Reported					
Analytical Method, Analyt		GC-FID; MDL = 1 μ g/L; test mat.					
sults Per Degredation Paran	neter						
Results Remarks		TCA (1,1,1-trichloroethane) degradation and production of daughter products observed, most pronounced during 4-6 month period when DCA concentrations were elevated but decreased to initial values at the end; pathway: TCA \rightarrow DCA \rightarrow CA. DCA concentrations in living control at 0,					
		1.5, 4, 6, 10 months were ca. 1750, 1600, 2400, 1400, and 1390 µg/L, respectively; DCA concentrations in dead control at 0, 1.5, 4, 6, 10 months					
		were ca. 1750, 1600, 2400, 1400, and 1390 μ g/L, respectively. TCA/DCA mass ratio decreased from ca. 7.8 (0 months) to ca. 4.1 (10 months)					
Halflife, Standard Deviatio	n Results, Reference	not reported; not reported; sterile controls; Comparable rates of TCA levels decreasing were observed; TCA degradation likely abiotic					
Substance Results, and I	Reference Substance						
Compartment Results							
Results Details		not reported					
Mean Total Recovery Resul	ts and Results Per Re-	not reported; not reported					
covery							
Results Value, Direct Qua		concentrations at the start ca. 1750 and end 1390 µg/L; not reported; methane (CH4), ethene (C2H4), and ethane (C2H6) were detected in					
and Transformation Produc	ts	microcosms after 10 months					

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Subst	tance			
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Uninformative	The source of the test substance was as a degradation product of TCA.

			ontinued from previous page				
Study Citation:	Lookman, R., Borremans, B., De Ceuster, T., Gemoets, J., Diels, L. (2005). Effects of carbon source amendment on the anaerobic degradation of 1,1,1-						
OECD Harmonized	trichloroethane (TCA) in a contaminated aquifer. Water, Air, and Soil Pollution 166(1-4):197-216. Biodegradation in Sediment						
Template:	8						
HERO ID:	1739430						
			EVALUATION				
Domain		Metric	Rating	Comments			
Domain 2: Test Design							
	Metric 3:	Study Controls	High	A sterile control was included.			
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.			
Domain 3: Test Conditi	ions						
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.			
	Metric 6:	Testing Conditions	Medium	Limited detail regarding test conditions.			
	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	ame						
Domain 4. Test Organis	Metric 9:	Outcome Assessment Methodology	Uninformative	Microbial viability not validated.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.			
Domain 5: Outcome As	Metric 11:	Test Substance Identity	Low	Biodegradation rates not reported; however, degradation products and a degradation pathway were presented.			
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding sampling methods.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were not discussed.			
	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	Uninformative	Analytical details were limited; there was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.			
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.			
Overall Quali	tv Determi	nation	Uninformative				

Study Citation: OECD Harmonized	NCBI, (2020). Pub Biodegradation in	Chem database: compound summary: 1,1-dichloroethane. Sediment			
Template: HERO ID:	6629204				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-DCA			
Confidentiality, EndPoint, T Guideline		None; inherent biodegradability; Experimental; other: Guideline not specified			
Solvent, Reactivity, Storage		NR; NR; NR			
Radiolabel, Source, State, I	Purity	NR; NR; NR Notes: NR			
Oxygen and Inoculum		not specified; natural water / sediment: Collected above and below the water table at Pickett, OK, and Fort Polk, LA			
Duration, Parameter, System	m, and	8 - 16 wk; not specified; Not reported; Not reported			
Sampling Frequency Results Sample Time, C Compartment, Water Compartment, CEC, and pl	1 0	Not reported; Not reported; Not reported; Not reported; Not reported; Not reported			
Control Dark, Control, and		Not reported; Not reported; Not reported			
Concentration		Not reported Not reported - Not reported Not reported Not reported			
Analytical Method, Analyt sults Per Degredation Parar		Not reported; Not reported; Not reported			
Results Remarks		No degradation observed			
Halflife, Standard Deviation Substance Results, and Compartment Results	· · · · · · · · · · · · · · · · · · ·	Not reported; Not reported; Not reported; Not reported			
Results Details		Not reported			
Mean Total Recovery Resul covery	lts and Results Per Re-	Not reported; Not reported			
Results Value, Direct Qua and Transformation Produc		Not reported; Not reported; Not reported			

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	(Continued on next page	

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		contin	ued from previous	page			
Study Citation:	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane.						
OECD Harmonized	Biodegradation in Sediment						
Template:							
HERO ID:	6629204						
		I	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 8:	System Type and Design	N/A	Rating of this factor is not applicable to this kind of information.			
Domain 4: Test Organis	sms						
8	Metric 9:	Outcome Assessment Methodology	Medium	Some details in this secondary source; the primary source likely contains more detail.			
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.			
Domain 5: Outcome As							
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
Domain 6: Confounding	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.			
		Exposure					
Domain 7: Data Present	tation and Analysis						
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
		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	-	database or other secondary source.			
	Metric 18:	QSAR Models	N/A	Rating of this factor is not applicable to this kind of information.			
Overall Quali	tv Determin	ation	Medium				

* Related References: Wilson JR et al; Devel Indust Microbiol 24: 225-33 (1983)

•	NCBI, (2020). Pub Biodegradation in S	-	summary: 1,1-dichloroethane.			
-	6629204					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-DCA				
Confidentiality, EndPoint, Typ	oe,	None; other; Field monitoring	data; other: Guideline not specified			
Guideline Solvent, Reactivity, Storage, S	tability	NR; NR; NR; NR				
Radiolabel, Source, State, Pur		NR; NR; NR; NR				
Oxygen and Inoculum	ity	NK; NK; NK not specified; natural water / sediment: Well from a landfill with a contamination history				
Duration, Parameter, System,	and	Not reported; not specified; Not reported; Not reported				
Sampling Frequency		rice reported, not speemed, ric				
Results Sample Time, Com	partment, Sludge	Not reported; Not reported; Not	ot reported; Not reported; Not reported; Not reported	d		
Compartment, Water						
Compartment, CEC, and pH Control Dark, Control, and Bla	ank	Not Reported: Not reported: N	lot reported			
Concentration	allk	Not Reported; Not reported; Not reported Not reported				
Analytical Method, Analytica	l Details and Re-	Not reported; Not reported; Not	at Reported			
sults Per Degredation Paramet		not reponed, not reponed, n	of Reported			
Results Remarks		Not Reported				
Halflife, Standard Deviation I Substance Results, and Ref	· ·	115 d; Not reported; Not repor	rted; Not reported			
Compartment Results Results Details		Not reported				
Mean Total Recovery Results and Results Per Re-		Not reported Not reported				
covery	and resound i of Re-	rior reported, rior reported				
Results Value, Direct Quanta and Transformation Products	um Yield Results,	Not reported; Not Reported; N	lot reported			
			EVALUATION			
Domain		Metric	Rating	Comments		

			E (Indentition)	
Domain		Metric	Rating	Comments
Domain 1: Test Subst	ance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Desig	;n			
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Cond	itions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.
		0	Continued on next page	•••

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		contin	ued from previous	page
Study Citation: N	NCBI, (2020). P	ubChem database: compound summary: 1,	,1-dichloroethane.	
OECD Harmonized E	Biodegradation i	n Sediment		
Template:				
HERO ID: 6	629204			
			EVALUATION	
Domain		Metric	Rating	Comments
Ν	Aetric 8:	System Type and Design	N/A	Rating of this factor is not applicable to this kind of information.
Domain 4: Test Organisms				
N	Aetric 9:	Outcome Assessment Methodology	Medium	Not reported in this secondary source; the primary source likely contains more detail.
N	Aetric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assess	sment			
Ν	Aetric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Ν	Aetric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 6: Confounding/Va	ariable Control			
0	Aetric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Aetric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.
		Exposure		
Domain 7: Data Presentatio	on and Analysis			
	Aetric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Ν	Aetric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.
		Kinetic Calculations		
Domain 8: Other				
Ν	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the data's inclusion in a peer- reviewed/recognized database or other secondary source.
N	Aetric 18:	QSAR Models	N/A	Rating of this factor is not applicable to this kind of information.
Overall Quality	Determi	nation	Medium	

* Related References: Washington JW, Cameron BA; Environ Toxicol Chem 20(9): 1909-1915 (2001)

Study Citation: OECD Harmonized		t, N. D., Broholm, M. M. (2014). Effects of bioaugmentation on enhanced reductive dechlorination of 1,1,1-trichloroethane in ground- on of three sites. Biodegradation 25(3):459-478. Sediment	
Template: HERO ID:	3489148		
		EXTRACTION	
Parameter		Data	
CASRN and Test Material		75-34-3; 1,1-dichloroethane	
Confidentiality, EndPoint, T Guideline		None; screening test; Experimental; other: Microcosm study	
Solvent, Reactivity, Storage		Filtered water; NA; NR; NA	
Radiolabel, Source, State, P	Purity	NR; Degradation of 1,1,1-trichloroethane; NR; NA Notes: NA	
Oxygen and Inoculum		anaerobic (Iron- to sulfate-reducing); natural sediment: freshwater: groundwater and sediment core samples from Baldersbækvej, Høje Tastrupvej, and Vadsbyvej	
Duration, Parameter, Syster Sampling Frequency	n, and	601 days; test material; microcosm; reported to be periodically	
Results Sample Time, Compartment, Water Compartment, CEC, and pH	1	NR; in sorbed, aqueous, and gaseous phases; sediment core samples; groundwater; NR; NR	
Control Dark, Control, and		NR; NR; 1,1-DCA production attributed to desorption from contaminated sediment and was not dechlorinated in the intrinsic controls during the 601-day incubation	
Concentration		Not Reported	
Analytical Method, Analyt sults Per Degredation Paran		reported in the supplementary information; NR; test material concentration	
Results Remarks		1,1-DCA was dechlorinated to CA after a lag phase of approximately 300 days and only in bioaugmented treatments.	
Halflife, Standard Deviatio Substance Results, and I Compartment Results		NR; NR; NA; NA	
Results Details		Figures present concentrations at different sampling points	
Mean Total Recovery Result covery	ts and Results Per Re-	NR; NR	
Results Value, Direct Quantum Yield Results, and Transformation Products		0%/601 days (without bioaugmentation); NA; 1,1,1-trichloroethane and 1,1-dichloroethane to chloroethane	

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Subst	tance			
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	Low	Reported results from control group indicated presence of the test substance from con- taminated sites and absorption of the test substance into sediment.
			Continued on next page	

Study Citation:	Scheutz, C., Durant, N. D., Broholm, M. M. (2014). Effects of bioaugmentation on enhanced reductive dechlorination of 1,1,1-trichloroethane in ground-							
		water: a comparison of three sites. Biodegradation 25(3):459-478.						
OECD Harmonized	Biodegradation in Sediment							
Template:								
HERO ID:	3489148							
			EVALUATION					
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type (test substance was a transformation product).				
Domain 3: Test Condit	ions							
	Metric 5:	Test Method Suitability	Medium	The test method was likely suitable for the test substance with minor deviations and omissions in reporting.				
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions.				
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.				
	Metric 8:	System Type and Design	Low	There were reported deviations or omissions in system type and design.				
Domain 4: Test Organi	eme							
Domani 4. Test Organi	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.				
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.				
	incule 10.	Sumpling Interious	10/1					
Domain 5: Outcome A	ssessment							
	Metric 11:	Test Substance Identity	Uninformative	1,1-Dichloroethane was not the chemical of interest of this study (a transformation product).				
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported.				
Domain 6: Confoundin	Wariable Control							
	Metric 13:	Confounding Variables	Uninformative	There were sources of variability and uncertainty in the measurements and statistical techniques or between study groups resulting in serious flaws that make the study unusable for 1.1-dichloroethane.				
	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							
Domain 7. Data i fesch	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappear- ance was not likely due to some other process.				
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations described and address the dataset(s).				
Domain 8: Other								
Domain 6. 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	Uninformative					

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		m, J., Graves, D., Löffler, F. E. (2017). Natural Attenuation in Streambed Sediment Receiving Chlorinated Solvents from Underlying Environmental Science & Technology 51(9):4821-4830.
	Biodegradation in Se	
Template: HERO ID: 4	852412	
		EXTRACTION
Parameter]	Data
CASRN and Test Material	,	75-34-3; 1,1-Dichloroethane
Confidentiality, EndPoint, Typ	e, 1	None; Other; Experimental; other: microcosm study
Guideline Solvent, Reactivity, Storage, S	tability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Puri	2	Not Reported; Sigma-Aldrich-Fluka (St. Louis, MO); Not Reported; >99%
Oxygen and Inoculum		Anoxic; natural sediment: Chlorinated solvent contaminated sediment samples were collected from a former metal manufacturing facility, adja- cent to Third Creek (Knoxville, TN). Sediment microcosms were made in 60 mL glass serum bottles with 4 g sediment and 26 mL of anoxic, bicarbonate-buffered mineral salts medium amended with 5 mM lactate.
Duration, Parameter, System, a Sampling Frequency		20 months; test mat.; 60 mL serum bottles; NR
Results Sample Time, Com Compartment, Water Compartment, CEC, and pH	partment, Sludge	NR; Not Reported; Not Reported; Not Reported; NR
Control Dark, Control, and Bla	ank	Not Reported; Not Reported; Autoclaved control (60 min at 121°C) and blank controls were used.
Concentration		19.8 - mg/L
Analytical Method, Analytica sults Per Degredation Parameter		GC-FID; Agilent 7890 Gas chromatograph equipped with a flame ionization detector and a DB-624 capillary column.; Test material
Results Remarks		The time at which the biodegradation analysis was made was not clearly reported. (assumed to be 4-5 weeks based on reported conversion to ethene for other chemicals in the study).
Halflife, Standard Deviation I Substance Results, and Ref Compartment Results		Not Reported; Not Reported; Not Reported
Results Details]	Not Reported
Mean Total Recovery Results a covery	nd Results Per Re-	Not Reported; Not Reported
Results Value, Direct Quantu and Transformation Products	im Yield Results,	75-100%; Not Reported; Chloroethane

			EVALUATION				
Domain		Metric	Rating	Comments			
Domain 1: Test Substance							
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.			
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.			
Domain 2: Test Desi	gn						
	Metric 3:	Study Controls	High	Autoclaved and blank controls were used.			
	Continued on next page						

Study Citation:	Fracture Network	s. Environmental Science & Technology 5		n in Streambed Sediment Receiving Chlorinated Solvents from Underlying			
OECD Harmonized	Biodegradation in Sediment						
Template: HERO ID:	4852412						
	4032412						
Demain		E Metric	VALUATION	Comments			
Domain	Metric 4:	Test Substance Stability	Rating High	Details regarding the test substance stability, preparation, and storage conditions were			
	Weute 4.	Test Substance Stability	Ingn	reported and appropriate.			
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	Some details regarding the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.			
	Metric 7:	Testing Consistency	High	Triplicate samples were used and no differences across the sample groups were reported			
	Metric 8:	System Type and Design	Medium	Some details regarding the system type and design were not reported; however, the omissions are unlikely to have a substantial impact on the study results.			
Domain 4: Test Organis	ms						
	Metric 9:	Outcome Assessment Methodology	High	The inoculum type used was suitable for 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	High	The outcome assessment methodology addressed the intended outcome of interest.			
	Metric 12:	Test Substance Purity	High	Details regarding the sampling method were reported and appropriate.			
Domain 6: Confounding	Wariable Control						
Domain 0. Comounding	Metric 13:	Confounding Variables	High	Uncertainty was accounted for in the reported biodegradation percentage.			
	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						
	Metric 15:	Data Reporting	Low	The analytical method was appropriate; however details on the target chemical and transformation product(s) concentrations (if required), extraction efficiency, percent recovery, or mass balance were not reported.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Kinetic calculations were not reported and data was not provided to make them independently.			
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 Quali	ty Dotormin	ation	Medium				

Study Citation: OECD Harmonized Template:	Aziz, C. E., Smith, A. P., Newell, C. J., Gonzales, J. (2000). BIOCHLOR: Chlorinated solvent plume database report. (1):117-124. Biodegredation in Soil				
HERO ID: 5433869					
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, 7 Guideline	Sype,	No; Other; Calculated; other: None; field-scale biodegradation rate constants estimated by calibrating the BIOCHLOR model			
Solvent, Reactivity, Storage	, Stability	NR; NR; NR			
Radiolabel, Source, State, H	Purity	NR; NR; NR			
Oxygen, pH, and CEC		Anaerobic; Not Reported; Not Reported			
Test Type, Test Temperatur	e, and Test Details	field trial; Not Reported; Biodegradation rate constant was calculated from 1,1-DCA plumes at three sites.			
Soil Type, Clay Silts and Bulk Density	Organic Carbon, and	Not Reported; Not Reported; Not Reported			
Soil Classification, Microb midity	ial Biomass, and Hu-	Not Reported; Not Reported: Not Reported			
Duration, Parameter, Syster Sampling Frequency	n, and	Not Reported; Not Reported; Not Reported; Not Reported			
Control and Blank		Not Reported; Not Reported			
Concentration		1.400 at Site 1; 0.443 at Site 2; 0.026 at Site 3. mg/L			
Analytical Method, Analyt sults Per Degredation Parar Results Remarks	neter	Field-scale biodegradation rate constants were estimated using the BIOCHLOR model.; Model simulates the reactive transport of chlorinated solvents in the subsurface and assumes sequential first order reductive dechlorination.; Not Reported BIOCHLOR median rate constants and half-lives are applicable for anaerobic plumes that are not electron donor-limited. The study states that 'the most rapid biodegradation rates, affecting the widest range of chlorinated aliphatic hydrocarbons occurs under sulfate-reducing and methanogenic conditions (Bouwer, 1994)' and that 'different amounts of native organic matter and fuel co-contaminants in the groundwater may be responsible for the difference in the incidence of complete reductive dechlorination'			
Results Value, Standard De ple Time Results, Reference and Reference Substance C Results Details Mean Total Recovery Result covery	e Substance Results, ompartment Results	Not Reported; Not Reported; Not Reported; Not Reported; Not Reported Median half-life: 2.3 years. Rate constants at sites 1, 3 and 4 (1/yr): 1.2, 0.3, 0.2. Not Reported; Not Reported			

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Substar	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified using established nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance was present in field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of controls was not reported in the secondary source; however, the omission is unlikely to have a substantial impact on the study results.
			Continued on next p	page

Study Citation: OECD Harmonized Template:	Aziz, C. E., Smi Biodegredation		. BIOCHLOR	: Chlorinated solvent plume database report. (1):117-124.			
HERO ID:	5433869						
	EVALUATION						
Domain		Metric	Rating	Comments			
	Metric 4:	Test Substance Stability	Medium	The test substance was present in field samples.			
Domain 3: Test Conditi	ons						
Domain 5. Test Conditi	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.			
	Metric 6:	Testing Conditions	High	The site conditions were monitored and appropriate.			
	Metric 7:	Testing Consistency	High	Changes in conditions across different sites were reported.			
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.			
Domain 4: Toot Ore							
Domain 4: Test Organis	sms Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.			
	Metric 9.	Sampling Methods	N/A N/A	The metric is not applicable to the study type.			
	Metric 11: Metric 12:	Test Substance Identity Test Substance Purity	High Medium	The outcome assessment methodology addressed the intended outcome of interest. Details regarding the sampling methods were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	High	Sources of variability across the sample groups were considered.			
	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	5					
	Metric 15:	Data Reporting	Medium	Details regarding the analytical methodology across the studies were not reported in the secondary source.			
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were reported and appropriate.			
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 Quali	ty Determi	nation	High				

Study Citation: OECD Harmonized Template:	Montgomery, L., A Biodegredation in		Vogel, T. M. (1994). Anaerobic	biodegradation of chlorinated organic compounds. :256-276.
HERO ID:	2191741			
			EXTRACTION	
Parameter		Data		
CASRN and Test Material		Not Reported; dichloroethane		
Confidentiality, EndPoint, 7 Guideline	Type,	None; dehalogenation summary; none;	other: None	
Solvent, Reactivity, Storage	, Stability	NA; NA; NA; NA		
Radiolabel, Source, State, F	Purity	NA; NA; NA; NA Notes: NA		
Dxygen, pH, and CEC		anaerobic; NA; NA		
Test Type, Test Temperature	e, and Test Details	other; NA; NA		
Soil Type, Clay Silts and Bulk Density	-	other; NA; NA		
Soil Classification, Microbi		NA; NA: NA		
Duration, Parameter, Syster Sampling Frequency	n, and	NA; NA; NA; NA		
Control and Blank		NA; NA		
Concentration		NA NA - NA NA NA		
Analytical Method, Analyt sults Per Degredation Paran Results Remarks		NA; NA; NA dichloroethane dehalogenated by mixed	d cultures of anaerobic bacteria and	pure cultures of bacteria.
Results Value, Standard De ple Time Results, Reference and References Substance Co	e Substance Results,	NR; NR; NA; NA; NA		
Results Details	1	NA		
Mean Total Recovery Resul covery	ts and Results Per Re-	NA; NA		
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substand	ce			
	Metric 1:	Test Substance Identity	Medium	The test substance was identified by a general name characterization details were omit- ted that could affect interpretation of study results; however, the omission was not likel to have a substantial impact on the study results.
	Metric 2:	Test Substance Purity	Uninformative	Review article; The nature and quantity of reported impurities were such that study results were unduly influenced by one or more of the impurities. These are serious flaw that make the study unusable.

Study Citation: OECD Harmonized	Montgomery, L., A Biodegredation in		I, T. M. (1994). Anaerobic	biodegradation of chlorinated organic compounds. :256-276.
Template: HERO ID:	2191741			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	Uninformative	Review article; The study did not include or report crucial control groups that conse- quently made the study unusable (e.g., no positive control for a biodegradation study reporting 0% removal).
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this review article.
Domain 3: Test Conditi	000			
Domain 3. Test Conditi	Metric 5:	Test Method Suitability	Uninformative	Review article; The test method was not reported or not suitable for the test substance. These deviations or lack of information resulted in serious flaws that make the study unusable.
	Metric 6:	Testing Conditions	Uninformative	Review article; Testing conditions were not reported and data provided were insufficient to interpret results.
	Metric 7:	Testing Consistency	Uninformative	Review article; Critical exposure details across samples or study groups were not re- ported and these omissions resulted in serious flaws that had a substantial impact on the overall confidence, consequently making the study unusable.
	Metric 8:	System Type and Design	Uninformative	Review article; Equilibrium was not established or reported preventing meaningful interpretation of study results.
Domain 4: Test Organis	eme			
Domain 4. Test Organis	Metric 9:	Outcome Assessment Methodology	Uninformative	The test organism, species, or inoculum source were not reported.
	Metric 10:	Sampling Methods	Uninformative	Review article; The test organism information was not reported.
Domain 5: Outcome As	sessment			
Domain 5. Outcome M	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this review article.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this review article.
Domain 6: Confounding	v/Variable Control			
Domain of Comountaing	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this review article.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this review article.
		Exposure		
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	Uninformative	Review article; The analytical method used was not suitable for detection of the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this review article.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	N/A	The metric is not applicable to this review article.
	Metric 18:	Results QSAR Models	N/A	A QSAR model was not reported.

Study Citation: DECD Harmonized Femplate:	Montgomery, L., Assaf-Anid, N., Nies, L., Anid, P. Biodegredation in Soil	J., Vogel, T. M. (1994). Anaerobic biodegradation	of chlorinated organic compounds. :256-276.
HERO ID:	2191741		
		EVALUATION	
Domain	Metric	Rating	Comments

* Related References: Vogel, T. M., and P. L. McCarty. 1987. Abiotic and biotic transformations of 1,1,1-trichloroethane under methanogenic conditions. Environ. Sci. Technol. 21:1208-1213. HERO ID 1740605 Egli, C., R. Scholtz, A. M. Cook, and T. Leisinger. 1987. Anaerobic dechlorination of tetrachloromethane and 1,2-dichloroethane to biodegradable products by pure cultures of Desulfobacterium sp. and Methanobacterium sp. FEMS Microbial. Lett. 43 :257-261. HERO ID 3629723Belay, N., and L. Daniels. 1987. Production of ethane, ethylene, and acetylene from halogenated hydrocarbons by methanogenic bacteria. Appl. Environ. Microbial. 53:1604-1610. HERO ID 2310612

Study Citation: OECD Harmonized	NCBI, (2020). Pub Biodegredation in	OChem database: compound summary: 1,1-dichloroethane. Soil
Template: HERO ID: 6629204		
		EXTRACTION
Parameter		Data
CASRN and Test Material		75-34-3; 1,1-DCA
Confidentiality, EndPoint, ' Guideline		None; other; Experimental; other: Guideline not specified; Anaerobic biodegradation half-life
Solvent, Reactivity, Storage, Stability		NR; NR; NR
Radiolabel, Source, State, Purity		NR; NR; NR
Oxygen, pH, and CEC		anaerobic; Not reported; Not reported
Test Type, Test Temperatur		not specified; Not reported
Soil Type, Clay Silts and Bulk Density	Organic Carbon, and	Not Reported; Not reported; Not reported
Soil Classification, Microb midity	ial Biomass, and Hu-	Not reported; Not reported: Not reported
Duration, Parameter, Syste Sampling Frequency	m, and	Not reported; not specified; Not reported; Not reported
Control and Blank		Not reported; Not reported
Concentration		Not reported
Analytical Method, Analy sults Per Degredation Param		Not reported; Not reported; Not reported
Results Remarks		Not reported
Results Value, Standard De ple Time Results, Reference and References Substance C	ce Substance Results,	Not reported; Not reported; Not reported; Not reported
Results Details		Half-life: > 30 - 60 d
Mean Total Recovery Result covery	lts and Results Per Re-	Not reported; Not reported

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substa	ance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail
Domain 2: Test Desig				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail

Study Citation: OECD Harmonized	NCBI, (2020). P Biodegredation i	ubChem database: compound summary: 1,1 n Soil	-dichloroethane.	
Template: HERO ID:	6629204			
		E	VALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 8:	System Type and Design	N/A	Rating of this factor is not applicable to this kind of information.
Domain 4: Test Organis	sms			
8	Metric 9:	Outcome Assessment Methodology	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 10:	Sampling Methods	N/A	Rating of this factor is not applicable to this kind of information.
Domain 5: Outcome As	sessment			
Domain 5. Outcome 74	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 6: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.
		Exposure		
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.
		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 database or other secondary source.
	Metric 18:	QSAR Models	N/A	Rating of this factor is not applicable to this kind of information.

* Related References: ATSDR; Toxicological Profile for 1,1-Dichloroethane. Atlanta, GA: Agency for Toxic Substances and Disease Registry, US Public Health Service (2015). Available from, as of April 10, 2018: http://www.atsdr.cdc.gov/toxprofiles/index.asp

Study Citation:	Scheutz, C., Mosba Quality 33(1):61-7	aek, H., Kjeldsen, P. (2004). Attenuation of methane and volatile organic compounds in landfill soil covers. Journal of Environmental 1.			
OECD Harmonized	Biodegredation in				
Template:	-				
HERO ID:	2773700				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, T Guideline	ſype,	No; screening test; Experimental; Not Reported			
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR			
Radiolabel, Source, State, P	Purity	NA; Aldrich (Steinheim, Germany); NR; 'high purity'			
Oxygen, pH, and CEC		aerobic; 6.9; NR			
Test Type, Test Temperature	e, and Test Details	laboratory; 22°C; Not Reported			
Soil Type, Clay Silts and Bulk Density	Organic Carbon, and	loamy sand; 5.7% silt, 88.1% sand, 5.3% gravel, 3.2% ww organic carbon; 1.55			
Soil Classification, Microbi midity	ial Biomass, and Hu-	loamy sand per USDA classification; from soil 15-20 cm below the surface: 25% w/w			
Duration, Parameter, System Sampling Frequency	n, and	12 hours; test material; soil microcosm; intermittently over study; about 1 time per hour			
Control and Blank		Not Reported; chemically sterilized soil			
Concentration		260 - ug/L			
Analytical Method, Analyti sults Per Degredation Paran Results Remarks		gas chromatograph with a flame ionization detector and an electron capture detector; gas samples $(10-500 \text{ uL})$ were taken directly from reaction bottles; Degradation rate integrated over the depth Oxidation rate = 0.169 ug/g soil/hour; K0, trace (Degradation rate integrated over the depth) = 1,940 mg m-2 d-1			
Results Value, Standard Dev ple Time Results, Reference and Reference Substance Co	e Substance Results,	Not Reported; NR; 12 times per study (approx); Not Reported; Not Reported			
Results Details		Not Reported			
Mean Total Recovery Result covery	ts and Results Per Re-	Not Reported; Not Reported			

			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	High	The source or purity of the test substance was reported.
Domain 2: Test Design	n			
c c	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, were included.
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance storage conditions were not reported; however, the omissions are unlikely impact on the study results.

Study Citation:			on of methane a	and volatile organic compounds in landfill soil covers. Journal of Environmental
	Quality 33(1):61-			
OECD Harmonized	Biodegredation in	5011		
Template: HERO ID:	2772700			
ILKO ID:	2773700			
			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 3: Test Conditi				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Medium	Some details regarding the system type and design were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 4: Test Organis	sms			
-	Metric 9:	Outcome Assessment Methodology	High	The inoculum was described and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some details regarding the sampling methods were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding		~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		
	Metric 13:	Confounding Variables	High	Uncertainty in the test substance and degradation product concentrations were reported and acceptable.
	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	High	The analytical method was reported and appropriate. Test substance and degradation
	mente 15.	Data Reporting	ringii	product concentrations were reported graphically.
	Metric 16:	Statistical Methods and	High	Statistical methods or kinetic calculations were clearly described and address the
		Kinetic Calculations	8	dataset(s).
-				
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 Quality Determination			High	

			, R. L., Legault, J. (1997). Persist	ence of volatile organic compounds in sludge treated soils. Water		
	ality Research Jodegredation in S	ournal of Canada 32(3):579-597.				
Template:	odegredation in a	3011				
-	5796					
Parameter		Data	EXTRACTION			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane				
Confidentiality, EndPoint, Type,		None; other; Experimental; other: Pers	sistence of VOCs in soils inoculated	with anaerobically digested sludge using a method developed by the		
Guideline		Water Technology International Corpor	ration			
Solvent, Reactivity, Storage, Stal	•	NR; NR; NR; NR				
Radiolabel, Source, State, Purity	7	NR; NR; NR; NR				
Oxygen, pH, and CEC		aerobic; 5.4; 9.8 cmol/kg				
Test Type, Test Temperature, and Test Details		laboratory; $22\pm2^{\circ}C$; Target compound was spiked into municipal sludge treated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed through at 50 cm3/min for 4 h followed by intermittent aeration in 24 h intervals				
Soil Type, Clay Silts and Organ Bulk Density	nic Carbon, and	sandy loam; 74% sand 16% silt 10% cl				
Soil Classification, Microbial Bi midity	iomass, and Hu-	Vineland: fine sandy loam; anaerobical	ly digested municipal sludge total sol	ids: 36 g/L: Not reported		
Duration, Parameter, System, and Sampling Frequency		288 hours; test mat.; Flask reaction vessel wrapped in foil; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours				
Control and Blank		Not reported; Not reported				
Concentration		50 other				
Analytical Method, Analytical I sults Per Degredation Parameter		GC-MS/ECD; methanol analysis with 0	GC equipped with autosampler and el	ectron capture detector; half-life (hours)		
Results Remarks		Not reported				
Results Value, Standard Deviatic ple Time Results, Reference Su and Referencs Substance Compa	bstance Results,	53; R-squared: 0.43; Not reported; Not	reported; Not reported			
Results Details		Not reported				
Mean Total Recovery Results and covery	d Results Per Re-	Recoveries were highly variable; specified in the soil was determined by subtracting		ed; VOC recoveries were reduced following 24h, the VOC remaining rved total recovery		
			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 1: Test Substance			···· 0			
	etric 1:	Test Substance Identity	High	The test substance was identified clearly.		
	etric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.		
Domain 2: Test Design						
Me	etric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).		
			Continued on next page			

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Study Citation:	Webber, M. D., C	Goodin, J. D., Fowlie, P. J., Hong-You, R. L.,	Legault, J. (1997). Persiste	nce of volatile organic compounds in sludge treated soils. Water
-	Quality Research	Journal of Canada 32(3):579-597.	0 , ()	
OECD Harmonized	Biodegredation in	n Soil		
Template:	(1570)			
HERO ID:	645796			
			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 Condition	ons			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organis				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source 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	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
		~	U	
Domain 6: Confounding	/Variable Control			
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Present	ation 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations	-	
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
		Results		
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Study Citation:	Quality Research J	ournal of Canada 32(3):579-597.	R. L., Legault, J. (1997). Persis	tence of volatile organic compounds in sludge treated soils. Water	
OECD Harmonized Template:	Biodegredation in	Soil			
HERO ID:	645796				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, Type, Guideline Solvent, Reactivity, Storage, Stability		None; other; Experimental; other: Persistence of VOCs in soils inoculated with anaerobically digested sludge using a method developed by the Water Technology International Corporation NR; NR; NR; NR			
Radiolabel, Source, State, P	urity	NR; NR; NR; NR			
Oxygen, pH, and CEC		aerobic; 7.2; 15 cmol/kg			
Test Type, Test Temperature Soil Type, Clay Silts and C		laboratory; $22\pm2^{\circ}$ C; Target compound through at 50 cm3/min for 4 h followed sandy loam; 73% sand 20% silt 7% clay	by intermittent aeration in 24 h inter	eated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals	
Bulk Density Soil Classification, Microbi midity	-	Caledon: sandy loam; anaerobically dig		36 g/L: Not reported	
Duration, Parameter, System, and Sampling Frequency		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours Not reported; Not reported			
Control and Blank Concentration		50 other			
Analytical Method, Analyti sults Per Degredation Param		GC-MS/ECD; methanol analysis with C	GC equipped with autosampler and e	electron capture detector; half-life (hours)	
Results Remarks Results Value, Standard Dev ple Time Results, Reference and Referencs Substance Co Results Details	e Substance Results,	Not reported 23; R-squared: 0.59; Not reported; Not Not reported	reported; Not reported		
Mean Total Recovery Result	s and Results Per Re-	*			
covery		in the soil was determined by subtractin	<i>i c i</i>		
			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substanc					
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).	
	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.	
			Continued on next page		

		Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Journal of Canada 32(3):579-597.	Legault, J. (1997). Persist	ence of volatile organic compounds in sludge treated soils. Water
OECD Harmonized	Biodegredation in	n Soil		
Template:				
HERO ID:	645796			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions	s			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
]	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
]	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of th exposure were documented.
]	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	3			
	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
]	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Asses	sement			
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/V	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A N/A	The metric is not applicable to this study type.
	Wieuric 14.	Exposure	IN/A	The metric is not applicable to this study type.
Domain 7: Data Presentati	on 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
1	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
		Zoriit models	1 1/2 1	The metre is not appreade to and study type.
Overall Quality	[,] Determin	ation	Uninformative	

. (Quality Research J	ournal of Canada 32(3):579-597.	R. L., Legault, J. (1997). Persis	tence of volatile organic compounds in sludge treated soils. Water	
OECD Harmonized 1 Template:	Biodegredation in	Soil			
-	645796				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		75-34-3; 1.1-Dichloroethane			
Confidentiality, EndPoint, Type, Guideline Solvent, Reactivity, Storage, Stability		None; other; Experimental; other: Persistence of VOCs in soils inoculated with anaerobically digested sludge using a method developed by the Water Technology International Corporation NR; NR; NR; NR			
Radiolabel, Source, State, Pur	ity	NR; NR; NR; NR			
Oxygen, pH, and CEC		aerobic; 7.1; 19 cmol/kg			
Test Type, Test Temperature, a		through at 50 cm3/min for 4 h followed	by intermittent aeration in 24 h inte	eated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals	
Soil Type, Clay Silts and Or Bulk Density	-	sandy loam; 28% sand 52% silt 20% cla			
Soil Classification, Microbial midity	Biomass, and Hu-	Conestogo: silt loam; anaerobically dige	ested municipal sludge total solids:	36 g/L: Not reported	
Duration, Parameter, System, and Sampling Frequency		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours			
Control and Blank		Not reported; Not reported			
Concentration	Dataila and Da	50 other	C aquinned with outgoonnelon and a	lastron conture datastory half life (hours)	
Analytical Method, Analytica sults Per Degredation Paramet Results Remarks		Not reported	c equipped with autosampler and e	lectron capture detector; half-life (hours)	
Results Value, Standard Devia ple Time Results, Reference and Referencs Substance Com	Substance Results,	47; R-squared: 0.65; Not reported; Not	reported; Not reported		
Results Details		Not reported			
Mean Total Recovery Results a covery	and Results Per Re-	Recoveries were highly variable; specifi in the soil was determined by subtractin	<i>i i</i>	ted; VOC recoveries were reduced following 24h, the VOC remaining erved total recovery	
			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substance					
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
]	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.	
Domain 2: Test Design					
U	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).	
]	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.	
			Continued on next page		

		Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Journal of Canada 32(3):579-597.	Legault, J. (1997). Persist	ence of volatile organic compounds in sludge treated soils. Water
OECD Harmonized	Biodegredation in	n Soil		
Template:				
HERO ID:	645796			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions	s			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
]	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
]	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of th exposure were documented.
]	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	3			
	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
]	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Asses	sement			
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/V	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A N/A	The metric is not applicable to this study type.
	Wieuric 14.	Exposure	IN/A	The metric is not applicable to this study type.
Domain 7: Data Presentati	on 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
1	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
		Zoriit models	1 1/2 1	The metre is not appreade to and study type.
Overall Quality	[,] Determin	ation	Uninformative	

-	tion: Webber, M. D., Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Legault, J. (1997). Persistence of volatile organic compounds in sludge treated soils. Water Quality Research Journal of Canada 32(3):579-597.				
	Biodegredation in				
Template:	(1570)				
HERO ID:	645796				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, Typ	e.		istence of VOCs in soils inoculated	with anaerobically digested sludge using a method developed by the	
Guideline	-,	Water Technology International Corpora		· · · · · · · · · · · · · · · · · · ·	
Solvent, Reactivity, Storage, S	tability	NR; NR; NR; NR			
Radiolabel, Source, State, Pur	ity	NR; NR; NR; NR			
Oxygen, pH, and CEC		aerobic; 6.7; 23 cmol/kg			
Test Type, Test Temperature, a	and Test Details	laboratory; $22\pm 2^{\circ}$ C; Target compound through at 50 cm3/min for 4 h followed		eated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals	
Soil Type, Clay Silts and Or	ganic Carbon, and	sandy loam; 27% sand 57% silt 16% cla	ay 2.6% OC; Not reported		
Bulk Density	Diamagna and H	TT-1dimend: 16 1		26 - II - Networked	
Soil Classification, Microbial midity	Biomass, and Hu-	Haldimand: silt loam; anaerobically dig	ested municipal sludge total solids:	so g/L: not reported	
Duration, Parameter, System, and		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours			
Sampling Frequency			, 8		
Control and Blank		Not reported; Not reported			
Concentration		50 other			
Analytical Method, Analytica		GC-MS/ECD; methanol analysis with C	GC equipped with autosampler and e	electron capture detector; half-life (hours)	
sults Per Degredation Paramet	er				
Results Remarks		Not reported			
Results Value, Standard Devia ple Time Results, Reference		55; R-squared: 0.33; Not reported; Not	reported; Not reported		
and Reference Substance Com					
Results Details	partitione results	Not reported			
Mean Total Recovery Results a	and Results Per Re-	A			
covery		in the soil was determined by subtracting the recovery at 22°C from the observed total recovery			
			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substance					
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
1	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.	
Domain 2: Test Design					
I	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).	
I	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.	
			Continued on next page		

		Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Journal of Canada 32(3):579-597.	Legault, J. (1997). Persist	ence of volatile organic compounds in sludge treated soils. Water
OECD Harmonized	Biodegredation in	n Soil		
Template:				
HERO ID:	645796			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions	s			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
]	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
]	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of th exposure were documented.
]	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	3			
	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
]	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Asses	sement			
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/V	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A N/A	The metric is not applicable to this study type.
	Wieuric 14.	Exposure	IN/A	The metric is not applicable to this study type.
Domain 7: Data Presentati	on 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
1	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
		Zoriit models	1 1/2 1	The metre is not appreade to and study type.
Overall Quality	[,] Determin	ation	Uninformative	

Study Citation:	Quality Research J	ournal of Canada 32(3):579-597.	R. L., Legault, J. (1997). Persis	tence of volatile organic compounds in sludge treated soils. Water	
OECD Harmonized Template:	Biodegredation in	Soil			
HERO ID:	645796				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, EndPoint, Type, Guideline Solvent, Reactivity, Storage, Stability		None; other; Experimental; other: Persistence of VOCs in soils inoculated with anaerobically digested sludge using a method developed by the Water Technology International Corporation NR; NR; NR; NR			
Radiolabel, Source, State, Pu	irity	NR; NR; NR; NR			
Oxygen, pH, and CEC		aerobic; 6.0; 50 cmol/kg			
Test Type, Test Temperature, Soil Type, Clay Silts and C		laboratory; $22\pm2^{\circ}$ C; Target compound v through at 50 cm3/min for 4 h followed sandy loam; 3% sand 47% silt 50% clay	by intermittent aeration in 24 h inte	eated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals	
Bulk Density Soil Classification, Microbia midity	l Biomass, and Hu-	Lincoln: silty clay; anaerobically digest	ed municipal sludge total solids: 36	g/L: Not reported	
Duration, Parameter, System, and Sampling Frequency Control and Blank		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours Not reported; Not reported			
Concentration		50 other			
Analytical Method, Analytic sults Per Degredation Parameter		GC-MS/ECD; methanol analysis with C	C equipped with autosampler and e	electron capture detector; half-life (hours)	
Results Remarks Results Value, Standard Dev ple Time Results, Reference	Substance Results,	Not reported 39; R-squared: 0.99; Not reported; Not	reported; Not reported		
and Referencs Substance Co Results Details	mpartment Results	Not reported			
Mean Total Recovery Results	and Results Per Re-	Not reported Recoveries were highly variable; specific recovery data for target not reported; VOC recoveries were reduced following 24h, the VOC remaining			
covery	and Results I of Re-	in the soil was determined by subtractin	5 6 1	e	
			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substance					
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).	
	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 wer not likely to have a substantial impact on study results.	
			Continued on next page		

		Goodin, J. D., Fowlie, P. J., Hong-You, R. L., Journal of Canada 32(3):579-597.	Legault, J. (1997). Persist	ence of volatile organic compounds in sludge treated soils. Water
OECD Harmonized	Biodegredation in	n Soil		
Template:				
HERO ID:	645796			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions	s			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
]	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
]	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of th exposure were documented.
]	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	3			
	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
]	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Asses	sement			
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/V	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A N/A	The metric is not applicable to this study type.
	Wieuric 14.	Exposure	IN/A	The metric is not applicable to this study type.
Domain 7: Data Presentati	on 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
1	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.
		Zoriit models	1 1/2 1	The metre is not appreade to and study type.
Overall Quality	[,] Determin	ation	Uninformative	

-	Quality Research J	ournal of Canada 32(3):579-597.	R. L., Legault, J. (1997). Persis	tence of volatile organic compounds in sludge treated soils. Water	
OECD Harmonized Template:	Biodegredation in	Soil			
-	645796				
			EXTRACTION		
Parameter		Data			
CASRN and Test Material		75-34-3; 1.1-Dichloroethane			
Confidentiality, EndPoint, Type, Guideline Solvent, Reactivity, Storage, Stability		None; other; Experimental; other: Persistence of VOCs in soils inoculated with anaerobically digested sludge using a method developed by the Water Technology International Corporation NR; NR; NR; NR			
Radiolabel, Source, State, Pur	rity	NR; NR; NR; NR			
Oxygen, pH, and CEC		aerobic; 7.2; 21 cmol/kg			
Test Type, Test Temperature, Soil Type, Clay Silts and O		laboratory; 22±2°C; Target compound through at 50 cm3/min for 4 h followed sandy loam; 13% sand 52% silt 35% cla	by intermittent aeration in 24 h inte	eated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals	
Bulk Density Soil Classification, Microbial	-	Muck I: silty clay loam; anaerobically d		s: 36 g/L: Not reported	
midity Duration, Parameter, System, and Sampling Frequency		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours			
Control and Blank		Not reported; Not reported			
Concentration		50 other			
Analytical Method, Analytic sults Per Degredation Parame			GC equipped with autosampler and e	electron capture detector; half-life (hours)	
Results Remarks Results Value, Standard Devi ple Time Results, Reference and Referencs Substance Cor	Substance Results,	Not reported 61; R-squared: 0.98; p =0.01; Not rep</td <td>orted; Not reported; Not reported</td> <td></td>	orted; Not reported; Not reported		
Results Details		Not reported			
Mean Total Recovery Results covery	and Results Per Re-	Recoveries were highly variable; specif in the soil was determined by subtractin	, e i	ted; VOC recoveries were reduced following 24h, the VOC remaining erved total recovery	
			EVALUATION		
Domain		Metric	Rating	Comments	
Domain 1: Test Substance					
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.	
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.	
Domain 2: Test Design					
U	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).	
	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.	
			Continued on next page		

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Template: HERO ID: Domain	645796			
	645796			
Domain				
Domain			EVALUATION	
		Metric	Rating	Comments
Domain 3: Test Condition	ane and a second s			
Domain 5. Test Conduct	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisi	m .c			
Domain 4. Test Organisi	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Ass			Ŧ	
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding	/Variable Control			
C	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.
		Exposure		
Domain 7: Data Presenta	ation 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
2 shum of Outer	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
	Matria 18	Results QSAR Models	NI/A	
	Metric 18:	QSAK Models	N/A	The metric is not applicable to this study type.

Study Citation:		-	, R. L., Legault, J. (1997). Persis	tence of volatile organic compounds in sludge treated soils. Water			
OECD Harmonized	Biodegredation in	Journal of Canada 32(3):579-597. Soil					
Template:	C						
HERO ID:	645796						
			EXTRACTION				
Parameter		Data					
CASRN and Test Material		75-34-3; 1,1-Dichloroethane					
Confidentiality, EndPoint, Type, Guideline Solvent, Reactivity, Storage, Stability		, ,		with anaerobically digested sludge using a method developed by the			
Radiolabel, Source, State, I	•	NR; NR; NR; NR					
Dxygen, pH, and CEC	-	aerobic; 7.0; 77 cmol/kg					
Fest Type, Test Temperatur Soil Type, Clay Silts and		laboratory; 22±2°C; Target compound through at 50 cm3/min for 4 h followed sandy loam; 16% sand 54% silt 30% cl	1 by intermittent aeration in 24 h inte	ated soils at 50 mg/kg dry weight; held w/o air for 1h, then air passed rvals			
Bulk Density Soil Classification, Microb nidity	vial Biomass, and Hu-	Muck II: silty clay loam; anaerobically digested municipal sludge total solids: 36 g/L: Not reported					
Duration, Parameter, System, and Sampling Frequency		288 hours; test mat.; Flask reaction vessel; gas inlet/outlet, Teflon washer and plastic screw cap; 0.25, 1, 4, 24, 48, 144, 288 hours					
Control and Blank Concentration		Not reported; Not reported	0 other				
Analytical Method, Analytical	tical Details and Re-	GC-MS/ECD; methanol analysis with GC equipped with autosampler and electron capture detector; half-life (hours)					
ults Per Degredation Para Results Remarks		Not reported	se equipped with autosampler and e				
Results Value, Standard De ole Time Results, Reference and Referencs Substance C	ce Substance Results,	83; R-squared: 0.83; p =0.05; Not rep</td <td>ported; Not reported; Not reported</td> <td></td>	ported; Not reported; Not reported				
Results Details		Not reported					
Mean Total Recovery Resul covery	lts and Results Per Re-	Recoveries were highly variable; speci- in the soil was determined by subtractin	<i>i c</i> 1	ed; VOC recoveries were reduced following 24h, the VOC remaining erved total recovery			
			EVALUATION				
Domain		Metric	Rating	Comments			
Domain 1: Test Substan							
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.			
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.			
Domain 2: Test Design							
	Metric 3:	Study Controls	Uninformative	The study did not include or report crucial control groups (no sterile/abiotic/positive control).			
	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 4:	Test Substance Stability	Medium Continued on next page	The test substance stability, homogenei reported; however, these factors were n			

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Template: HERO ID: Domain	645796			
	645796			
Domain				
Domain			EVALUATION	
		Metric	Rating	Comments
Domain 3: Test Condition	ane and a second s			
Domain 5. Test Conduct	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisi	m .c			
Domain 4. Test Organisi	Metric 9:	Outcome Assessment Methodology	High	The test organism information/inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Ass			Ŧ	
	Metric 11:	Test Substance Identity	Low	The percent loss due to biodegradation and/or volatilization was unclear.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding	/Variable Control			
C	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to	N/A	The metric is not applicable to this study type.
		Exposure		
Domain 7: Data Presenta	ation 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	High	This metric met the criteria for high confidence as expected for this type of study.
		Kinetic Calculations		
Domain 8: Other				
2 shum of Outer	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.
	Matria 18	Results QSAR Models	NI/A	
	Metric 18:	QSAK Models	N/A	The metric is not applicable to this study type.

Study Citation: Dewulf, J., Dewettinck, T., De Visscher, A., Van Langenhove, H. (1996). Sorption of chlorinated C1- and C2-hydrocarbons and monocyclic aroma hydrocarbons on sea sediment. Water Research 30(12):3130-3138.				
OECD Harmonized	Adsorption and De			
Template:	ridsorption and De			
HERO ID:	1946157			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		75-34-3: 1.1-Dichloroethane		
Confidentiality, Type, Guid	eline	None; Experimental; other: Column sorption experiment using sea sediment		
Solvent, Reactivity, Storage		NR; NR; NR		
Radiolabel, Source, State, I		NR; Janssen; NR; NR Notes: used without further purification		
Sampling Frequency, San Number of Replicates	•	Not reported; closed two-phase systems samples were obtained; Not reported		
pH, Test Temperature, Buffer, and Test Details		Not reported; 25.0±0.3C; Not reported; column characteristics: Total volume: 95.03 mL, 182.25 wet mass, 147.47 dry matter, 34.78g w content, 34.10 mL water volume, porosity: 0.359		
Matrix, Clay Silts and Organic Carbon, and CEC		Not Reported; OC: 0.030±0.004% (w/w); Not reported		
Bulk Density and Matrix Details		Apparent density of column: 1.552 kg/L; density of saltwater at 25C: 1.020 kg/L; Sediment collected from the North Sea on the Belgian Continent Shelf Oct. 1993 sieved over 0.5 mm sieve before filling column		
Media, Recovery, and Stati	stics	Artificial seawater; Not reported; SSQ (sum of squares deviations): 8.37E-3 (result from column experiment with off-line detection)		
Transformation Products, E Adsorption Details, and Ec	1	Not reported; Not reported; Not reported		
Details Reference Substance, Refe sults, and Percent Adsorption		Not reported; Not reported; Not reported		
Adsorption Coefficient Typ ficient Results, Adsorption Comments, and Adsorption Desorption Type	pe, Adsorption Coef- n Coefficient Results	Not reported; Not reported; Not reported; Not reported		
Partition Coefficient Type and Partition Coefficient Results		Kp,sw: solid phase/salt water partitioning coefficient L/kg; Koc/sw: organic matter/sea water partitioning coefficient L/kg; Koc: organic carbon- water partitioning coefficient; Ksed: equilibrium partitioning coefficient between wet sediment/water column; Kp,sw: 3.46E-3 (column experiment with off-line detection); Koc/sw: 11.5 (mole/kg over mole/L) Koc: 9.2 (mole /kg over mole/L) log Koc: 0.96; Ksed: 0.353		
Partition Coefficient Phase	and Partition Coeffi-	sediment-water; D (dispersion coefficient, m2/s) = $5.70E-8$ (result from column experiment with off-line detection)		
cient Results Mass Balance		Not Reported		

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
Metric 2:	Test Substance Purity	Medium	Source was reported, purity was not reported.
Domain 2: Test Design			
Metric 3:	: Study Controls	Low	Data for study controls were not reported; use of sterile soil was not reported.
		Continued on next page	

Study Citation:		ttinck, T., De Visscher, A., Van Langenh ea sediment. Water Research 30(12):313		Sorption of chlorinated C1- and C2-hydrocarbons and monocyclic aromatic				
OECD Harmonized		Adsorption and Desorption						
Template:								
HERO ID:	1946157							
			EVALUATION					
Domain		Metric	Rating	Comments				
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.				
Domain 3: Test Condition	ons							
Domain 5. Test Condition	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.				
	Metric 6:	Testing Conditions	Low	Some details for testing conditions and soil characteristics were not specified.				
	Metric 7:	Testing Consistency	High	No inconsistencies were reported or identified.				
	Metric 8:	System Type and Design	High	System design was reported and appropriate.				
Domain 4: Test Organis	ms							
Domain 1. Test organis	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								
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for this study.				
	Metric 12:	Test Substance Purity	Medium	Limited sampling details were reported.				
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	ation and Analysis							
	Metric 15:	Data Reporting	Low	Reporting details were omitted from this study (e.g., mass balance, analytical LOD recovery).				
	Metric 16:	Statistical Methods and	High	Statistical analysis and kinetic calculations were appropriate.				
		Kinetic Calculations						
Domain 8: Other								
	Metric 17:	Verification or Plausibility of	Medium	Lack of controls limit the validity of the results.				
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.				

* Related References: HSDB; HERO ID 6629204

Study Citation: OECD Harmonized Template:	Enzminger, J. D. (Adsorption and De		nation of C2 hydrocarbo	ons in batch and fixed-film bioreactors.		
HERO ID:	5443549					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-DCA				
Confidentiality, Type, Guid	eline	None; Experimental; other: Non-guidel	line column study			
Solvent, Reactivity, Storage	, Stability	NR; NR; NR; NR				
Radiolabel, Source, State, F	Purity	NR; NR; NR; NR				
Sampling Frequency, Sar Number of Replicates	npling Details, and	Not reported; equilibration times were	short enough so biodegrad	dation was not expected; Not reported		
pH, Test Temperature, Buff	er, and Test Details	buffer used pH 7; NR, likely Room tem	perature; 10 mM phospha	ate buffer; sludge aerated and autoclaved in serum bottles		
Matrix, Clay Silts and Orga	nic Carbon, and CEC	other; Not reported; Not reported				
Bulk Density and Matrix D	etails	Not reported; anaerobic sludge				
Media, Recovery, and Statis	stics	anaerobic media; Same compared to buffer control; Not reported				
Transformation Products, E	quilibrium	NR in this study; Not reported; Not reported				
Adsorption Details, and Eq	uilibrium Desorption					
Details Reference Substance Refe	ronaa Substansa Da	Not separated. Not separated. Not separated				
Reference Substance, Refe sults, and Percent Adsorption		Not reported; Not reported; Not reported				
Adsorption Coefficient Typ		Not reported; Not reported; Not reporte	ed: Not reported			
ficient Results, Adsorption		······	,			
Comments, and Adsorption						
Desorption Type						
Partition Coefficient Type	and Partition Coeffi-	Log Koc; 1.658 and 1.022				
cient Results Partition Coefficient Phase	and Partition Coeffi-	solids-water in raw sewage sludge; Concentration adsorbed to the sludge solids = the total measured amount of substrate in the bottle minus the				
cient Results	and I artition Coeffi-	quantity measured in the aqueous phase divided by the measured quantity of sludge solids				
Mass Balance		not discussed for this experiment				
		ľ				
			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 1: Test Substand	ce					
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.		
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported or explicitly verified by analytical means.		
Domain 2: Test Design						
-	Metric 3:	Study Controls	Medium	A concurrent negative control was not reported.		
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.		

Domain 3: Test Conditions

Study Citation: OECD Harmonized	Enzminger, J. D. Adsorption and I	(1988). Anaerobic reductive dechlorination Desorption	n of C2 hydrocarbo	ns in batch and fixed-film bioreactors.		
Template: HERO ID:	5443549					
HERO ID;	3443349					
D .			VALUATION			
Domain	Metric		Rating	Comments		
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.		
	Metric 6:	Testing Conditions	Medium	Some test parameters were not explicitly reported.		
	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	Medium	Some test system details were not reported; however, it was likely capable of maintain- ing substance concentrations.		
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	ssessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.		
	Metric 12:	Test Substance Purity	Low	Details regarding sampling methods were not fully reported, and the omissions may have a substantial impact on study results.		
Domain 6: Confounding	g/Variable Control					
Domain of Comountaing	Metric 13:	Confounding Variables	High	Variability in measurements were addressed.		
	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	Medium	Extraction efficiency and mass balance were not reported.		
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Details regarding this metric were not reported; however, additional information may be included in the primary source.		
				A 7		
Domain 8: Other	Metric 17:	Verification or Plausibility of	High	The results were reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.		
Overall Quali	ty Dotormin	notion	Medium			

Study Citation: OECD Harmonized Template:	Lam, T. T. (1994). Adsorption and De	Adsorption and diffusive transpor esorption	t of chlorinated alipha	atic solvents in unsaturated soil.			
HERO ID:	5443592						
			EXTRACTION	N			
Parameter		Data		· · · · · · · · · · · · · · · · · · ·			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane					
Confidentiality, Type, Guid	leline	None; Experimental; other: Adsorpt	ion of chlorinated hydro	carbons under water saturated conditions via a solid-liquid equilibrium batch method			
Solvent, Reactivity, Storag		NR; NR; NR; NR	2				
Radiolabel, Source, State,	•	NA; Spectrum Chemical (Gardena,	CA); Liquid; reagents gr	rade quality or better			
Sampling Frequency, Sa Number of Replicates	2	48 hrs; Not reported; 6 for each poin		1			
pH, Test Temperature, Buf		to 55 hours		ial; liquid:solid ratio for the soil was 2:1. Bottles were shaken and equilibrated for 48			
Matrix, Clay Silts and Orga		Not Reported; Sand: 25%, Clay: 25%	•	natter: 3.5%; 12.7 meq/100 g soil			
Bulk Density and Matrix D			Not Reported; 3.5% organic matter content				
Media, Recovery, and Stati		Quakertown soil; Not Reported; < 5					
Transformation Products, I Adsorption Details, and E	1	vinyls; Equilibrium results for 1,1-Dichloroethane were inconclusive; however, it was expected to reach equilibrium about the same time as trichloroethylene (20 hours); Not applicable The measured steady state diffusioncoefficients (Dg) of TCE at soil water contents of 0.5,1.6, 3.8, 7.4, and 12.6% are 0.027, 0.026,0.024, 0.014, and 0.009 cm ?/s, respectively.; Blanks containing aqueous solution and no soil were set up in parallel with soil bottles to account for any solute					
Details Reference Substance, Ref	erence Substance Re-						
sults, and Percent Adsorpti							
		vapor loss during the equilibration period; KI (monolayer adsorption capacity) = 30.83 proportionality constant, Kp; Slope = 0.254 ; Calculated using the Linear Model where solid phase (Cs) is directly proportional to the solution solute concentration (Ce): Cs = Kp x Ce; 0.177 (Freundlich Model)					
Adsorption Coefficient Ty ficient Results, Adsorptio Comments, and Adsorption	n Coefficient Results						
Desorption Type		Not reported; Not reported					
1 91	and Partition Coeffi-	Not reported, Not reported					
Partition Coefficient Type cient Results Partition Coefficient Phase		Not reported; Not reported					
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results							
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results		Not reported; Not reported	EVALUATION	N			
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results		Not reported; Not reported	EVALUATION Rating	N Comments			
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance Domain	e and Partition Coeffi-	Not reported; Not reported Not Reported					
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance Domain	e and Partition Coeffi-	Not reported Not Reported Metric Test Substance Identity	Rating High				
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance Domain	e and Partition Coeffi-	Not reported Not Reported Metric	Rating	Comments			
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance Domain Domain 1: Test Substan	e and Partition Coeffi-	Not reported Not Reported Metric Test Substance Identity	Rating High	Comments The test substance was identified definitively.			
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance Domain Domain Domain 1: Test Substan	e and Partition Coeffi-	Not reported Not Reported Metric Test Substance Identity	Rating High	Comments The test substance was identified definitively.			
Partition Coefficient Type cient Results Partition Coefficient Phase cient Results Mass Balance	e and Partition Coeffi- ice Metric 1: Metric 2:	Not reported; Not reported Not Reported Metric Test Substance Identity Test Substance Purity	Rating High High	Comments The test substance was identified definitively. The test substance source and purity were reported.			

Page 91 of 142

Study Citation: OECD Harmonized Template:	Lam, T. T. (1994). Adsorption and diffusive transport of chlorinated aliphatic solvents in unsaturated soil. Adsorption and Desorption					
HERO ID:	5443592					
	EVALUATION					
Domain		Metric	Rating	Comments		
Domain 3: Test Conditi	ons					
Domain 5. Test Conditi	Metric 5:	Test Method Suitability	High	Test method was suitable for measurement of absorption.		
	Metric 6:	Testing Conditions	High	Test conditions were clearly delineated.		
	Metric 7:	Testing Consistency	High	6 samples were used for each test and blanks were run in duplicate.		
	Metric 8:	System Type and Design	High	Design was reasonable for measurement of absorption.		
Domain 4: Test Organis	sms					
2 official of 1000 of game	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	Metric 11:	Test Substance Identity	Low	Multiple models were used to calculate adsorption, but a Koc was not calculated.		
	Metric 12:	Test Substance Purity	Low	Sampling details were not provided.		
	Wietrie 12.	Test Substance Furity	LOW	Sampling details were not provided.		
Domain 6: Confounding	g/Variable Control					
	Metric 13:	Confounding Variables	High	Steps were taken to account for non-absorption loss, such as volatilization and biodegra- dation.		
	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					
Domain 7. Data i lesen	Metric 15:	Data Reporting	Medium	Data reporting was reasonable, but some details were omitted.		
	Metric 16:	Statistical Methods and	Medium	Multiple models were used to calculate adsorption, but a Koc was not calculated.		
		Kinetic Calculations				
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	The results were reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.		
Overall Quali	ty Dotormin	ation	High			

Study Citation: Lu, C., Bjerg, P. I 83(11):1467-1474		L., Zhang, F., Broholm, M. M. (2011). Sorption of chlorinated solvents and degradation products on natural clayey tills. Chemosphere 4.				
OECD Harmonized	Adsorption and Desorption					
Template:						
HERO ID:	733896					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-DCA				
Confidentiality, Type, Guid	eline	None; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)				
Solvent, Reactivity, Storage	e, Stability	Distilled water; NR; NR; NR				
Radiolabel, Source, State, I	Purity	NA; NR; NR; Analytical grade Notes: Test substance characteristics reported in the supplementary material				
Sampling Frequency, Sampling Details, and Number of Replicates		Not reported; Not reported; Not reported				
pH, Test Temperature, Buff		Not reported; Not reported; Not reported; Guideline study				
Matrix, Clay Silts and Orga	anic Carbon, and CEC	clay; 7 samples of Danish clayey till from three sites at depths of 2.4 to 9.5 m below the surface (4 contaminated; 3 uncontaminated); Not reported				
Bulk Density and Matrix D	etails	Not reported; foc 0.02-0.08%; clay content 23.0-27.0%; 4 samples reduced clayey till, 3 samples oxidized clayey till				
Media, Recovery, and Stati		aqueous solution; Not reported; Not reported				
Transformation Products, E Adsorption Details, and Ec Details	1	Not reported; Test substance concentration: 1 mg/L; Not Reported				
Reference Substance, Refe sults, and Percent Adsorption	on	Analytical controls; Variation 10-30%, most GC/MS runs were 10-15%; Not reported				
Adsorption Coefficient Type, Adsorption Coef- ficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		sults, Adsorption Coefficient Results Reported; 1.05 ± 0.70 (oxidized clay); 3.95 ± 1.56 , 2.41 ± 2.28 (reduced clay), and Adsorption				
Partition Coefficient Type and Partition Coeffi- cient Results		Regression model using Kow: log Kd = 0.590 log Kow-1.561 (R-squared = 0.66); 2.90 (oxidized clay); 2.64, 2.54 (reduced clay)				
Partition Coefficient Phase cient Results	and Partition Coeffi-	sediment-water; Not Reported				
Mass Balance		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	Medium	The test substance source was not reported; although, it may be available in the supple- mental information.
Domain 2: Test Desigr	1			
	Metric 3:	Study Controls	Medium	Control group details were not included; however, it may be found in the Supp Info.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
			Continued on most a	
			Continued on next p	Dage

Study Citation:			Sorption of chlo	prinated solvents and degradation products on natural clayey tills. Chemosphere		
OECD Harmonized	83(11):1467-1474 Adsorption and D					
Template:	ridsorption and D	esciption				
HERO ID:	733896					
	EVALUATION					
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	High	Testing conditions were monitored, reported, and appropriate for the method.		
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.		
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance con- centrations.		
Domain 4: Test Organis	sms					
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to the study type.		
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to the study type.		
Domain 5: Outcome As	sessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for this study.		
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric were reported; however, the omissions were un-		
				likely to have hindered interpretation of the results.		
Domain 6: Confounding	g/Variable Control					
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the study were considered and accounted for in data evaluation.		
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to the study type.		
Domain 7: Data Present	tation and Analysis					
	Metric 15:	Data Reporting	Medium	Some details were in the supporting document, which was not readily available.		
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	No statistical methods or kinetic calculations (due to rapid equilibration) were reported.		
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:	Results QSAR Models	N/A	This metric is not applicable to the study type.		
Overall Quali	ty Determin	ation	High			

Study Citation: OECD Harmonized Template:	Mokrauer, J. E., Kosson, D. S. (1989). Electrophysical sorption of two carbon halogenated solvents onto soil. Environmental Progress 8(4):279-283. Adsorption and Desorption					
HERO ID:	5440801					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-Dichloroethane				
Confidentiality, Type, Guide	eline	None; Experimental; other: non-guideline sorption to soil				
Solvent, Reactivity, Storage	, Stability	Methanol; NR; NR				
Radiolabel, Source, State, P	•	No; NR; NR Notes: NR				
Sampling Frequency, Sampling Details, and Number of Replicates		Not reported; 6 extractions/sample in pentane at 4C; each concentration run in duplicate with controls				
pH, Test Temperature, Buffer, and Test Details		Not reported; 25C; Not reported; Test concentrations of 2, 5, 10, 50, 100, and 200 ppm (test solutions had less than 0.1% methanol) were shaken for 24h, centrifuged 4h, extracted in pentane, 6 extractions/ sample.				
Matrix, Clay Silts and Orga	nic Carbon, and CEC	Not Reported; soil composition on a mass basis: 72% sand, 16% silt, 12% clay, 1.8% organic matter; Not reported				
Bulk Density and Matrix De	etails	Not reported; bottles were filled with sifted, air-dried soil and water and then sealed with Teflon/silicone septa				
Media, Recovery, and Statis	tics	water; recovery in pentane phase was greater than 97%; r-squared = 0.9865				
Transformation Products, E Adsorption Details, and Eq Details	1	Not reported; equilibrium time was calculated in previous study; Not reported				
Reference Substance, Refe sults, and Percent Adsorptic		Not reported; Not reported; Not reported				
Adsorption Coefficient Type, Adsorption Coef- ficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Not reported; Not reported; Not reported				
Partition Coefficient Type cient Results		isotherm based on linear partitioning model; 0.5177				
Partition Coefficient Phase cient Results	and Partition Coeffi-	soil-water; Not Reported				
Mass Balance		Not reported				

	EVALUATION				
Domain		Metric	Rating	Comments	
Domain 1: Test Substan	nce				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly	
	Metric 2:	Test Substance Purity	Medium	Source and purity were not reported.	
Domain 2: Test Design					
	Metric 3:	Study Controls	Medium	Controls were included; result details were not reported.	
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.	
			Continued on next p	Dage	

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Study Citation: OECD Harmonized Template:	Mokrauer, J. E., Kosson, D. S. (1989). Electrophysical sorption of two carbon halogenated solvents onto soil. Environmental Progress 8(4):279-283. Adsorption and Desorption 5440801						
HERO ID:							
			EVALUATIO	N			
Domain		Metric	Rating	Comments			
Domain 3: Test Condition	ons						
	Metric 5:	Test Method Suitability	High	The test method was suitable.			
	Metric 6:	Testing Conditions	Medium	pH was not reported			
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.			
	Metric 8:	System Type and Design	High	The system type and design were appropriate.			
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 As	sessment						
Domain 5. Outcome 745	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.			
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding sampling methods.			
Domain 6: Confounding	Wariable Control						
Domain 0. Comounding	Metric 13:	Confounding Variables	Medium	Confounding variable such as other loss processes (biotic/abiotic) were not discussed.			
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric is not applicable to this type of study.			
		Exposure	1011				
Domain 7: Data Present	ation and Analysis						
	Metric 15:	Data Reporting	Medium	Data reporting was appropriate; however, control groups were not discussed.			
	Metric 16:	Statistical Methods and	High	95%CI were reported.			
		Kinetic Calculations		*			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of	Medium	The study results were reasonable.			
	Metric 18:	Results QSAR Models	N/A	This metric is not applicable to this type of study.			
Overall Qualit	ty Determin	ation	High				

Study Citation: OECD Harmonized	NCBI, (2020). Pub Adsorption and De	Chem database: compound sum sorption	mary: 1,1-dichloroethane.			
Template:	-	-				
HERO ID:	6629204					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-DCA				
Confidentiality, Type, Guid	leline	None; Experimental; other: Not sp	ecified			
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR; NR				
Radiolabel, Source, State, I	Purity	NR; NR; NR; NR				
Sampling Frequency, Samuel Sampling Frequency, Samuel Sam Number of Replicates	mpling Details, and	Not reported; Not reported; Not reported				
pH, Test Temperature, Buff	fer, and Test Details	Not reported; Not reported; Not reported; Not reported				
Matrix, Clay Silts and Orga	anic Carbon, and CEC	Not Reported; Not reported; Not reported				
Bulk Density and Matrix D	Details	Not reported; Sea sediment from Belgian Continental Shelf of the North Sea (collected October 1993)				
Media, Recovery, and Stati	stics	Not reported; Not reported; Not reported				
Transformation Products, E Adsorption Details, and Ec Details		Not reported; Not reported; Not re	ported			
Reference Substance, Refe sults, and Percent Adsorpti		Not reported; Not reported; Not reported				
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption						
Desorption Type Partition Coefficient Type and Partition 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		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	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Cond	litions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
		Сс	ontinued on next page	

		continued from previous page					
Study Citation:	NCBI, (2020). Pu	bChem database: compound summary: 1,	1-dichloroethane.				
OECD Harmonized	Adsorption and D	esorption					
Template:							
HERO ID:	6629204						
		E	EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
Domain 4: Test Organi	sms						
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.			
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.			
Domain 5: Outcome A	ssessment						
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
Domain 6: Confoundir	g/Variable Control						
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 14:	Health Outcomes Unrelated to	N/A	Rating of this factor is not applicable to this kind of information.			
		Exposure					
Domain 7: Data Preser	ntation and Analysis						
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.			
		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		database or other secondary source.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	ity Determine	ation	Medium				

* Related References: Dewulf J et al; Water Research 30: 3130-3138 (1996); HSDB

Study Citation: OECD Harmonized Template:	NCBI, (2020). PubChem database: compound summary: 1,1-dichloroethane. Adsorption and Desorption					
HERO ID:	6629204					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-DCA				
Confidentiality, Type, Guide	eline	None; Experimental; other: Not specified				
Solvent, Reactivity, Storage	, Stability	NR; NR; NR				
Radiolabel, Source, State, P	urity	NR; NR; NR				
Sampling Frequency, Sampling Details, and Number of Replicates		Not reported; Not reported; Not reported				
pH, Test Temperature, Buffer, and Test Details		Not reported; Not reported; Not reported; Not reported				
Matrix, Clay Silts and Organic Carbon, and CEC		Not Reported; Not reported; Not reported				
Bulk Density and Matrix Details		Not reported; Not reported				
Media, Recovery, and Statis	stics	Not reported; Not reported; Not reported				
Transformation Products, E Adsorption Details, and Eq		Not reported; Not reported				
Details Reference Substance, Refe sults, and Percent Adsorptic		Not reported; Not reported; Not reported				
Adsorption Coefficient Type, Adsorption Coef- ficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Koc; 30; Not reported; Not reported				
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 Substa	ance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Desig	n			
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Condi	itions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.
			Continued on next page	

continued from previous page					
Study Citation:	NCBI, (2020). P	ubChem database: compound summary: 1,	1-dichloroethane.		
OECD Harmonized	Adsorption and I	Desorption			
Template:					
HERO ID:	6629204				
		I	EVALUATION		
Domain		Metric	Rating	Comments	
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
Domain 4: Test Organisms	s				
-	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.	
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.	
Domain 5: Outcome Asse	ssment				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
Domain 6: Confounding/V	Variable Control				
-	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Rating of this factor is not applicable to this kind of information.	
		•			
Domain 7: Data Presentati	•				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source; the primary source likely contains more detail.	
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 database or other secondary source.	
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.	
Overall Quality	Determi	nation	Medium		

* Related References: Schuurmann G et al; Environ Sci Technol 40: 7005-7011 (2006); HSDB

Study Citation:		e, C. F. (1999). Chromatographic models for the sorption of neutral organic compounds by soil from water and air. Journal of Chro-			
OECD Harmonized	matography A 845				
	Adsorption and Desorption				
Template: HERO ID:	645740				
	010710	EXTRACTION			
Parameter		Data			
CASRN and Test Material		Not Reported; Not Reported			
Confidentiality, Type, Guide	line	None; Calculation; other: model for sorption and partitioning			
Solvent, Reactivity, Storage,	Stability	NR; NR; NR			
Radiolabel, Source, State, Pr		None; NR; NR; NR			
Sampling Frequency, Sampling Details, and Number of Replicates		Not applicable; Not applicable; Not applicable			
pH, Test Temperature, Buffer, and Test Details		Not applicable; Not applicable; Not applicable; 138 compounds were used in soil-water model; 69 compounds were used in soil-air model; using up to 6 descriptors; characteristic volume (0.635 cm3/mol/100), excess molar refraction (0.322 cm3/10), solute's dipolarity/polarizability (0.49), solute's hydrogen-bond acidity (0.10), solute's hydrogen-bond basicity (0.10), distribution constant between gas and n-hexadecane @ 298 K (2.316)			
Matrix, Clay Silts and Organ	ic Carbon, and CEC	other; Not applicable; Not applicable			
Bulk Density and Matrix De	tails	Not applicable; Not applicable			
Media, Recovery, and Statis	tics	Not applicable; Not applicable; Summary of statistics for 138 compounds for soil-water: p=0.940, SE=0.391, F=202; for 69 compounds soil-air: p=0.991, SE=0.238, F=667			
Transformation Products, Ec Adsorption Details, and Equ Details		Not applicable; Not applicable; Not applicable			
Reference Substance, Refer sults, and Percent Adsorptio		Not applicable; Not applicable; Not applicable			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Not applicable; Not applicable; Not applicable			
Partition Coefficient Type and Partition Coefficient Results		Log Koc; Log Kow; Log Koca; 1.48; 1.79; 2.10			
Partition Coefficient Phase a cient Results	and Partition Coeffi-	soil-water (Koc); octanol-water (Kow); soil-air (Koca); Not Reported			
Mass Balance		Not applicable			

EVALUATION					
Domain		Metric	Rating	Comments	
Domain 1: Test Substance	e				
	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					
c	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.	
Continued on next page					

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		continu	ued from prev	vious page				
Study Citation:	Poole, S. K., Poo matography A 84		s for the sorp	tion of neutral organic compounds by soil from water and air. Journal of Chro-				
OECD Harmonized	Adsorption and Desorption							
Template:								
HERO ID:	645740							
		F	EVALUATIO	N				
Domain		Metric	Rating	Comments				
	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	N/A	The metric is not applicable to this study type.				
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.				
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.				
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.				
Domain 4: Test Organi	sms							
Bolliulli I. Test orguin	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 A			NT/ A					
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this study type.				
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.				
Domain 6: Confoundin	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 Presen	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	High	This metric met the criteria for high confidence as expected for this type of study.				
		Kinetic Calculations	-					
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:	Results QSAR Models	N/A	The metric is not applicable to this study type.				
Overall Quali	ty Determin	ation	High					

•	RIVM, (2007). Eco Adsorption and De	e i	onmental risk limits for several volatile alipha	tic hydrocarbons. :217.		
Template:	Ausorption and De	sorption				
-	5159900					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-Dichloroethane				
Confidentiality, Type, Guidel	ine	None; Experimental; other				
Solvent, Reactivity, Storage,		Not reported; Not reported; N	ot reported; Not reported			
Radiolabel, Source, State, Pu	•		ot reported; Not reported Notes: Not reported			
Sampling Frequency, Sampling Number of Replicates	•	Not reported; Not reported; N				
pH, Test Temperature, Buffer	, and Test Details	Not reported; 2.3, 3.8, 6.2, 8, 13.5, 18.6, 25°C; Not reported; River Leie sediment				
Matrix, Clay Silts and Organic Carbon, and CEC		other; Not reported; Not reported				
Bulk Density and Matrix Details		Not reported; Not reported				
Media, Recovery, and Statistics		Not reported; Not reported; Not reported				
Transformation Products, Eq Adsorption Details, and Equ Details		Not reported; Not reported; N	ot reported			
Details Reference Substance, Reference Substance Re- sults, and Percent Adsorption		Not reported; Not reported; Not reported				
Adsorption Coefficient Type ficient Results, Adsorption Comments, and Adsorption Desorption Type		Not reported; Not Reported; N	lot Reported; Not reported			
Partition Coefficient Type and Partition Coefficient Results		Log Koc; 1.43 at 2.3°C, 1.46 at 3.8°C, 1.43 at 6.2°C, 1.48 at 8°C, 1.50 at 13.5°C, 1.49 at 18.6°C, 1.55 at 25°C				
Partition Coefficient Phase and Partition Coeffi- cient Results		Not reported; Soil/sediment water sorption coefficient (Log Koc)				
Mass Balance		Not reported				
			EVALUATION			
Domain		Metric	Rating	Comments		

	Continued on next page				
Domain 2: Test Design	Domain 2: Test Design Metric 3: Study Controls Medium Medium Study controls were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.				
	Metric 1: Metric 2:	Test Substance Identity Test Substance Purity	High Medium	The test substance was identified by common name. The test substance purity was not reported by the secondary source; however, the omis- sion is unlikely to have a substantial impact on the study results.	

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Study Citation: OECD Harmonized Template:	RIVM, (2007). Ecotoxicologically based environmental risk limits for several volatile aliphatic hydrocarbons. :217. Adsorption and Desorption					
HERO ID:	5159900					
			EVALUATION			
Domain		Metric	Rating	Comments		
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation, homogeneity, and storage conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.		
Domain 3: Test Conditi	ons					
Domain 5. Test Conditi	Metric 5:	Test Method Suitability	Low	Details regarding the test method were not reported in the secondary report.		
	Metric 6:	Testing Conditions	Medium	Some details regarding the testing conditions were not reported in the secondary report; however, the omissions are unlikely to have a substantial impact on the study results.		
	Metric 7:	Testing Consistency	Medium	Some details regarding the testing conditions across study groups were not reported in the secondary report; however, the omissions are unlikely to have a substantial impact on the study results.		
	Metric 8:	System Type and Design	Low	The system type was not clearly reported in the secondary report and the omissions may have an impact on the study results.		
Domain 4: Test Organis	1000					
Domain 4. Test Organis	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.		
		1 0		11 7 71		
Domain 5: Outcome As						
	Metric 11:	Test Substance Identity	Low	The outcome assessment was not reported in the secondary report which may have an impact on the study results.		
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not described in the secondary report; however, the omis- sions are unlikely to have a substantial impact on the study results.		
Domain 6: Confoundin	g/Variable Control					
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were not reported in the secondary report.		
	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					
Domain 7. Data i resell	Metric 15:	Data Reporting	Medium	Details regarding the sampling type were not reported in the secondary report.		
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not reported in the secondary reported.		
Domain 8: Other						
Domain 6. Other	Metric 17:	Verification or Plausibility of	Medium	A reference substance was not reported; however, the study results are reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.		

		continued from previous page		
Study Citation: OECD Harmonized Template:	RIVM, (2007). Ecotoxicologically based environ Adsorption and Desorption	nmental risk limits for several volatile aliphation	c hydrocarbons. :217.	
HERO ID:	5159900			
		EVALUATION		
Domain	Metric	Rating	Comments	
Overall Quali	ty Determination	Medium		

* Related References: Dewulf, J., Van Langenhove, H. and Grare, S. 1999. Sediment/water and octanol water equilibrium partitioning of volatile organic compounds: temperature dependence in the 2-25°C range. Wat Res. 33, 2424-2436.

Study Citation: OECD Harmonized	RIVM, (2007). Eco Adsorption and De	otoxicologically based environmental risk limits for several volatile aliphatic hydrocarbons. :217. esorption		
Template: HERO ID:	5159900			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		75-34-3; 1,1-Dichloroethane		
Confidentiality, Type, Guide	eline	None; Experimental; other		
Solvent, Reactivity, Storage	, Stability	Not reported; Not reported; Not reported; Not reported		
Radiolabel, Source, State, P	urity	Not reported; Not reported; Not reported Notes: 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; Not reported		
Matrix, Clay Silts and Organ	nic Carbon, and CEC	other; Not reported; Not reported		
Bulk Density and Matrix De	etails	Not reported; Not reported		
Media, Recovery, and Statis	tics	Not reported; Not reported		
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption		Not reported; Not reported; Not reported		
Details Reference Substance, Reference Substance Re- sults, and Percent Adsorption		Not reported; Not reported; Not reported		
Adsorption Coefficient Type, Adsorption Coef- ficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Not reported; Not Reported; Not reported		
Partition Coefficient Type a cient Results	and Partition Coeffi-	Log Koc; 1.48		
Partition Coefficient Phase cient Results	and Partition Coeffi-	Not reported; Soil/sediment water sorption coefficient (Log Koc)		
Mass Balance		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 name.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported by the secondary source; however, the omis- sion is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation, homogeneity, and storage conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:		cotoxicologically based environmental risk	limits for several v	volatile aliphatic hydrocarbons. :217.
OECD Harmonized	Adsorption and D	esorption		
Template: HERO ID:	5159900			
		F	VALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Condition	ons			
	Metric 5:	Test Method Suitability	Low	Details regarding the test method were not reported in the secondary report.
	Metric 6:	Testing Conditions	Medium	Some details regarding the testing conditions were not reported in the secondary reports however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Some details regarding the testing conditions across study groups were not reported in the secondary report; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	Low	The system type was not clearly reported in the secondary report and the omissions may have an impact on the study results.
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			
Domain 5. Outcome 715.	Metric 11:	Test Substance Identity	Low	The outcome assessment was not reported in the secondary report which may have an impact on the study results.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not described in the secondary report; however, the omis- sions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding	/Variable Control			
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were not reported in the secondary report.
	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	Medium	Details regarding the sampling type were not reported in the secondary report.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not reported in the secondary reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	A reference substance was not reported; however, the study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Qualit	v Determin	ation	Medium	

* Related References: Tao, S., Piao, H., Dawson, R., Lu, X. and Hu, H. 1999. Estimation of organic carbon normalized sorption coefficient (Koc) for soils using the fragment constant method. Environ. Sci. Technol. 33, 2719-2725.

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Study Citation: OECD Harmonized	RIVM, (2007). Eco Adsorption and De	otoxicologically based environmental risk limits for several volatile aliphatic hydrocarbons. :217. esorption		
Template: HERO ID:	5159900			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		75-34-3; 1,1-Dichloroethane		
Confidentiality, Type, Guide	eline	None; Experimental; other		
Solvent, Reactivity, Storage	, Stability	Not reported; Not reported; Not reported; Not reported		
Radiolabel, Source, State, P	urity	Not reported; Not reported; Not reported Notes: 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; North Sea sediment		
Matrix, Clay Silts and Organ	nic Carbon, and CEC	other; Not reported; Not reported		
Bulk Density and Matrix De	etails	Not reported; Not reported		
Media, Recovery, and Statis	tics	Not reported; Not reported		
Transformation Products, E Adsorption Details, and Eq Details		Not reported; Not reported; Not reported		
Reference Substance, Refe sults, and Percent Adsorptic		Not reported; Not reported; Not reported		
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		pe, Adsorption Coef- Not reported; Not Reported; Not Reported; Not reported n Coefficient Results		
Partition Coefficient Type and Partition Coefficient Results		Log Koc; 1.06		
Partition Coefficient Phase cient Results	and Partition Coeffi-	Not reported; Soil/sediment water sorption coefficient (Log Koc)		
Mass 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.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported by the secondary source; however, the omis- sion is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Study controls were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance preparation, homogeneity, and storage conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation: OECD Harmonized	RIVM, (2007). Ecotoxicologically based environmental risk limits for several volatile aliphatic hydrocarbons. :217. Adsorption and Desorption						
Femplate:	Ausorption and D	esorption					
HERO ID:	5159900						
		E	VALUATION				
Domain		Metric	Rating	Comments			
Domain 3: Test Condition	ons						
	Metric 5:	Test Method Suitability	Low	Details regarding the test method were not reported in the secondary report.			
	Metric 6:	Testing Conditions	Medium	Some details regarding the testing conditions were not reported in the secondary report however, the omissions are unlikely to have a substantial impact on the study results.			
	Metric 7:	Testing Consistency	Medium	Some details regarding the testing conditions across study groups were not reported in the secondary report; however, the omissions are unlikely to have a substantial impact on the study results.			
	Metric 8:	System Type and Design	Low	The system type was not clearly reported in the secondary report and the omissions may have an impact on the study results.			
Domain 4: Test Organis	ms						
8	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	Low	The outcome assessment was not reported in the secondary report which may have an impact on the study results.			
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not described in the secondary report; however, the omis- sions are unlikely to have a substantial impact on the study results.			
Domain 6: Confounding	Variable Control						
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were not reported in the secondary report.			
	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	Medium	Details regarding the sampling type were not reported in the secondary report.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were not reported in the secondary reported.			
Domain 8: Other							
Domain 6. Other	Metric 17:	Verification or Plausibility of	Medium	A reference substance was not reported; however, the study results are reasonable.			
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.			
Overall Qualit			Medium				

* Related References: Dewulf, J., Dewettinck, T., De Visscher, A. and Van Langenhove, H. 1996. Sorption of chlorinated C1- and C2-hydrocarbons and monocyclic aromatic hydrocarbons on sea sediment. Wat. Res. 30, 3130-3138.

•							
		l of Contaminant Hydro	logy 2(1):31-50.				
	Adsorption and Desorption						
Template: HERO ID: 54	444774						
HERO ID: 5 ²	++++ / / +						
D		D (EXTRACTION				
Parameter		Data					
CASRN and Test Material		75-34-3; 1,1-DCA					
Confidentiality, Type, Guideline	e	, ,	er: Non-guideline column study				
Solvent, Reactivity, Storage, Sta		NR; NR; NR; NR					
Radiolabel, Source, State, Purity	•		onte, PA; NR; NR Notes: NR				
Sampling Frequency, Sampling Number of Replicates	5	Not reported; Not reporte					
pH, Test Temperature, Buffer, and Test Details		7.2 +/- 0.2; Not reported; aquifer material	; Aerobic and anaerobic nutrient media; limited de	tails reported; 40 cm glass columns (130 ml volume) were filled with			
Matrix, Clay Silts and Organic	Carbon, and CEC	1	but not quantified; Not reported				
Bulk Density and Matrix Detail	s	Not reported; aquifer soli	id from 3 locations in the San Francisco Bay area				
Media, Recovery, and Statistics			I nutrient solutions, and primary substrate (2 mg/L n stimated error calculated using Gauss Method	nethanol or 3 mg/L glucose, equivalent to 3 mg/L COD).; NA; standard			
Transformation Products, Equil Adsorption Details, and Equilib Details		Biotransformation not ob	served in aerobic columns with aquifer materials.;	Not reported; Not reported			
Reference Substance, Reference sults, and Percent Adsorption	ce Substance Re-	Bromochloropropane as i	internal standard; NA; Not reported				
Adsorption Coefficient Type, A ficient Results, Adsorption Co Comments, and Adsorption	1	Kd (distribution coefficie	nt); 1.1E-6 m3/g (+/-0.5); Average of 7 columns; N	lot reported			
Desorption Type Partition Coefficient Type and Partition Coeffi-		ratio of sorbed mass to so	olution mass (Rp); 4.5				
cient Results Partition Coefficient Phase and cient Results	Partition Coeffi-	soil-water; test substance	concentrations of 50-150 ug/L				
Mass Balance		Calculated for sorption st	tudies				
			EVALUATION				
Domain		Metric	Rating	Comments			

Domain		Metric	Rating	Comments
Domain 1: Test Substan	nce			
	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name and CASRN.
	Metric 2:	Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	An internal standard was used and transformation products were monitored.
			Continued on next	page

Study Citation:	Siegrist, H., Mccarty, P. L. (1987). Column methodologies for determining sorption and biotransformation potential for chlorinated aliphatic compounds							
	in aquifers. Journal of Contaminant Hydrology 2(1):31-50.							
OECD Harmonized	Adsorption and Desorption							
Template: HERO ID:	5444774	5444774						
IIERO ID.	3444774							
D			EVALUATIO					
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							
Domain Dr. 1000 Contain	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 (e.g., temperature was not reported); how- ever, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.				
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these dis- crepancies were not likely to have a substantial impact on study results.				
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.				
Domain 4: Test 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	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	Low	Details regarding sampling methods were not fully reported, and the omissions may have a substantial impact on study results.				
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 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	tation and Analysis							
	Metric 15:	Data Reporting	High	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were reported.				
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).				
Domain 8: Other								
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.				
			ued on next p)age				

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Study Citation:	•	lccarty, P. L. (1987). Column me urnal of Contaminant Hydrology	•	ng sorption and biotransformation potential for chlorinated aliphatic compounds				
OECD Harmonized		Adsorption and Desorption						
Template:	•	-						
HERO ID:	5444774							
			EVALUATIO	Ň				
Domain		Metric	Rating	Comments				
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.				

	Buszka, P. M., Yeskis, D. J., Kolpin, D. W., Furlong, E. T., Zaugg, S. D., Meyer, M. T. (2009). Waste-indicator and pharmaceutical compounds in landfill- leachate-affected ground water near Elkhart, Indiana, 2000-2002. Bulletin of Environmental Contamination and Toxicology 82(6):653-659.				
	Miscellaneous				
Template:					
-	2133				
	EXTRACTION				
Parameter	Data				
CASRN and Test Material	Not Reported; 1,1-dichloroethane				
Confidentiality, Type, Guidelin	no; monitoring; monitoring				
Solvent, Reactivity, Storage, St	ility NR; NR; NR				
Radiolabel, Source, State, Purit	NR; NR; NR; NR	NR; NR; NR			
Test Method Details, Test Cond Test Consistency Details	on Details, and test chemical concentration measured at an observation well downgradient from a land neighborhood east of thelandfill; The domestic well water had concentrations of acetaminop in the observation well water; the authors suggest this indicates domestic well water may leachate contamination of the domestic well water was also indicated by the presence of b 1,1-dichloroethane, arsenic, sodium, and calcium.; duplicate samples were obtained and an	phen and caffeine larger than the concentrations detected y be contaminated by nearby septic systems. However, penzene, chloroform, 1,2-dichloroethane, vinyl chloride,			
System Type Design	Not Reported				
Sampling Frequency and Samp	g Details twice for wells downgradient from the landfill, once for domestic well samples; sample da	tes were 11/16/2000 and 10/31/2002			
Test Temperature	NR				
Results Details	average concentrations were 7.5 (7, 8) and 11.5 (11, 12) ug/L for samples in 2000 and 20 11/15/2000	002, respectively and 3 ug/L from the domestic well on			
Analytical Method and Analyti					
Transformation Products, Statis	cs, and Kinetics Not Reported; Not Reported; Not Reported				
Reference Substance and Refer Substance Results	ce 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	The analytical substance source or purity were not reported; however, the omissions were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control details were not reported; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this study type.
Domain 3: Test Condition	ons			
	Metric 5:	Test Method Suitability	N/A	This metric is not applicable to this study type.
	Metric 6:	Testing Conditions	Medium	Testing conditions were monitored, reported, and appropriate for the method.
			Continued on next page	

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Overall Quali	ty Determin	ation	Medium	
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Domain 8: Other	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was no possible.
	weute to:	Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
	Metric 15: Metric 16:	Data Reporting Statistical Methods and	Low Medium	There was insufficient evidence presented to confirm that parent compound disappear- ance was not likely due to some other process.
Domain 7: Data Present	-	Data Danastina	Low	
	metric 14:	Exposure	IN/A	The metric is not applicable to this study type.
Domain 6: Confounding	g/Variable Control Metric 13: Metric 14:	Confounding Variables Health Outcomes Unrelated to	N/A N/A	No confounding variables were noted.
	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 5: Outcome As	Metric 11:	Test Substance Identity	Low	The assessment methodology reported the presence of the target chemical in ground- water; however, the environmental transport and/or persistence of the compound were unable to be quantified.
Domain 5. Outooma Aa	aaamant			
	Metric 9: Metric 10:	Outcome Assessment Methodology Sampling Methods	N/A N/A	The metric is not applicable to this study type. The metric is not applicable to this study type.
Domain 4: Test Organis			NT/A	
	Metric 8:	System Type and Design	High	Equilibrium is assumed under field conditions.
	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.
Domain		E Metric	VALUATION Rating	Comments
Template: HERO ID:	4912133			
OECD Harmonized				Environmental Contamination and Toxicology 82(6):653-659.
Study Citation:	Buszka, P. M., Ye	skis, D. J., Kolpin, D. W., Furlong, E. T., Z	Zaugg, S. D., Meve	er, M. T. (2009). Waste-indicator and pharmaceutical compounds in landfill-

Study Citation:	Study Citation: Dewulf, J. P., Van Langenhove, H. R., Van der Auwera, L. F. (1998). Air/water exchange dynamics of 13 volatile chlorinated C1- and C2-hydrocarbon and monocyclic aromatic hydrocarbons in the southern North Sea and the Scheldt estuary. Environmental Science & Technology 32(7):903-911.				
OECD Harmonized	Miscellaneous				
Template:					
HERO ID:	644857				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3: 1.1-Dichloroethane			
	alina	None: Calculation: Calculation			
Confidentiality, Type, Guid		None, Calculation, Calculation			
Solvent, Reactivity, Storage Radiolabel, Source, State, I	•	NR; NR; NR NR; NR; NR			
	5				
Test Method Details, Test Consistency	Condition Details, and	Non diffusive water/air exchange based upon water-air concentrations; Field study with monitoring samples; Matrix spikes, field blanks, method			
Test Consistency Details		detection limits applied			
System Type Design		Water samples taken via Niskin sampling bottles at 3 - 5 m depth; air samples taken at the top of the wheel house vessel against the wind at a rate of 200 mL/min			
Sampling Frequency and S	ampling Details	Not reported six campaigns, 38 total simultaneous air and water samples taken; HCl added to water samples to prevent microbial degradation			
Test Temperature		Not applicable			
Results Details		Air to water fugacity ratio mean: 0.05. Water to air exchange mean flux: 1.2 µg m^-2 d^-1.			
Analytical Method and Analytical Details		Diffusive water to air exchange rate calculation based on developed fugacity model, relation between mass transfer of test substance and oxygen, and relationship between wind speed and mass transfer of oxygen, based on the measured phase concentration; Thermal desorption - gas chromatograph - mass spectrometer system. Water sample detection limits = $0.5 - 1.25$ ng/L; Air sample detection limits = $2.2 - 5.7$ ng/m3			
Transformation Products, S	Statistics, and Kinetics	Not applicable; Concentration in the water phase: 2.28 ng/L; Concentration in air: 2.3 pptv; Not reported			
Reference Substance and R Substance Results	leference	Not reported; Not reported			

		EVALUATIO	N
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively by chemical name.
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omissions or identified impuri- ties were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent negative control results from controls were within the ranges specified for test validity.
Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	C	ontinued on next p	Dage

Study Citation: OECD Harmonized	and monocyclic an	Dewulf, J. P., Van Langenhove, H. R., Van der Auwera, L. F. (1998). Air/water exchange dynamics of 13 volatile chlorinated C1- and C2-hydrocarbons and monocyclic aromatic hydrocarbons in the southern North Sea and the Scheldt estuary. Environmental Science & Technology 32(7):903-911. Miscellaneous					
Template:							
HERO ID:	644857						
		E	VALUATIO	N			
Domain		Metric	Rating	Comments			
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design (i.e., static, semi-static, and flow-through; sealed, open) were capable of appropriately maintaining substance concentrations.			
Domain 4: Test Organis	sms						
U	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	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.			
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed (e.g., sampling equipment, sample storage conditions) and no notable uncertainties or limitations were expected to influence results.			
Domain 6: Confoundin	Wariable Control						
Domain o: Contoundin	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 Presen	tation and Analysis						
Domain 7. Data i resch	Metric 15:	Data Reporting	High	Analytical methods used were suitable for detection and quantification of the target chemical.			
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	High	Reported values were consistent with related physical chemical properties (e.g., considering KOW, pKa, vapor pressure, etc.).			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			

•	Citation: Dewulf, J., Van Langenhove, H., Everaert, M., Vanthournout, H. (1998). Volatile organic compounds in the Scheldt estuary along the trajectory Antw Vlissingen: Concentration profiles, modelling and estimation of emissions into the atmosphere. Water Research 32(10):2941-2950.				
	Miscellaneous	in auon promes, moderning and estimation of emissions into the atmosphere. water Research 52(10).2941-2950.			
Template:					
HERO ID:	644856				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-Dichloroethane			
Confidentiality, Type, Guideli	ine	None; Calculation; Calculation			
Solvent, Reactivity, Storage, S		NR: NR: NR			
Radiolabel, Source, State, Pu	•	NR; NR; NR			
Test Method Details, Test Co Test Consistency	ndition Details, and	A fugacity model was used to calculate the air/water flux. Water concentrations at 10 sites were newly reported. Air data was taken from a previous study.; Not reported; Not reported			
Details System Type Design		Not reported			
Sampling Frequency and Sampling Details		72 water samples.; Water samples collected in 5 - 10 L Naskin bottles at 3-5 m depth. Stored in dark bottles without headspace at 4°C, with addition of 1/1 HCl to prevent microbial degradation.			
Test Temperature		Not applicable			
Results Details		Average water to air flux: 2.7 g/(km^2 d^1)			
Analytical Method and Analy	ytical Details	TD-GC-MS was used to measure 1,1-DCE concentrations in water.; Off-line purge and trap preconcentration. Limit of detection: 0.5 - 1.25 ng/L			
Transformation Products, Sta	tistics, and Kinetics	Not reported; St. Dev. = $< 11\%$; Not reported			
Reference Substance and Ref Substance Results	ference	Not reported; Not reported			

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Subst	ance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by common nomenclature.
	Metric 2:	Test Substance Purity	High	The subject chemical was identified using GC-MS.
Domain 2: Test Desig	n			
	Metric 3:	Study Controls	N/A	Control groups were not necessary for this study.
	Metric 4:	Test Substance Stability	High	Samples were stored in dark bottles at 4°C and pH 2 to prevent microbial degradation and photolysis.
Domain 3: Test Condi	itions			
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions (sampling and storage of samples) were reported.
	Metric 7:	Testing Consistency	High	There were no reported differences between the sample groups.
	Metric 8:	System Type and Design	N/A	This metric is not applicable for this type of study.

		contin	ued from pre	vious page		
Study Citation:	Dewulf, J., Van Langenhove, H., Everaert, M., Vanthournout, H. (1998). Volatile organic compounds in the Scheldt estuary along the trajectory Antwerp- Vlissingen: Concentration profiles, modelling and estimation of emissions into the atmosphere. Water Research 32(10):2941-2950.					
OECD Harmonized Template:	Miscellaneous	interior promes, moderning and estimate		is into the atmosphere. Water Research $52(10).2941-2550$.		
HERO ID:	644856					
			EVALUATIO	N		
Domain		Metric	Rating	Comments		
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable for this endpoint.		
	Metric 10:	Sampling Methods	High	Samples were collected without headspace to prevent volatilization during storage.		
Domain 5: Outcome A	ssessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.		
	Metric 12:	Test Substance Purity	Medium	The concentrations of the test substance in air were reported from another study, there- fore some details are missing. However, the omissions are not likely to have a substan- tial impact on the study results.		
Domain 6: Confoundin	og/Variable Control					
Domain of Company	Metric 13:	Confounding Variables	High	There were no observed confounding variables or differences between study groups.		
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this endpoint.		
Domain 7: Data Presen	ntation and Analysis					
	Metric 15:	Data Reporting	High	The analytical method was suitable for detecting the test substance.		
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods and fugacity model were clearly explained.		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	High	Compared to other literature values reported by the study, the results are reasonable.		
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to this study type.		
Overall Quali	ity Determin	ation	High			

Study Citation: OECD Harmonized Template:	Dow Chemical, (1983). Nonenymatic reductive dechlorination of chlorinated methanes and ethanes in aqueous solution with cover letter. Miscellaneous					
HERO ID:	1973123					
		EXTRACTION				
Parameter		Data				
CASRN and Test Material		75-34-3; 1,1-Dichloroethane				
Confidentiality, Type, Guid	eline	None; Experimental; Experimental				
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR				
Radiolabel, Source, State, F	Purity	No; Aldrich Chemical Co., Milwaukee, WI; NR; NR				
Test Method Details, Test C Test Consistency	Condition Details, and	reductive dehalogenation in aqueous solution in the presence of an excess of reducing agent; pH 7.0 (sulfide redox buffer [0.1M] prepared with aqueous Na2S in 0.1 M K2HPO4), 1 mg/L test concentration, anaerobic conditions, duration 4 days; Not reported				
Details System Type Design		Amber-colored serum bottles				
Sampling Frequency and Sa	ampling Details	day 0, 14, 28, and 42; Degradation monitored by disappearance of test material and formation of chloroethane and ethane.				
Test Temperature		25C				
Results Details Analytical Method and Ana	alytical Details	No apparent reduction observed in this system. 1,1-dichloroethaIn redox buffer: concentration at day 0, 14, 28, and 42 reported as 0.86, 0.83, 0.84, and 0.82, respectively. In redox buffer + hematin: concentration at day 0, 14, 28, and 42 reported as 0.86, 0.83, 0.85, and 0.80, respectively. No evidence of microbial contamination was detected. GC/FID; Not reported				
Transformation Products, S	tatistics, and Kinetics	1,1-dichloroethane rapidly formed from 1,1,1-trichloroethane in test conditions; Not reported; Not reported				
Reference Substance and R Substance Results	eference	Non-reducing controls were prepared in deoxygenated phosphate buffer; Concentration at day 0, 14, 28, and 42 reported as 0.85, 0.83, 0.83, and 0.82, respectively				

			EVALUATIO	N
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	The test substance source was reported but purity was not reported.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	Medium	Controls for hydrolysis were not included in the study.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage was 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 Cond	litions			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	The system was appropriate.

		comm	ued from prev	vious page
Study Citation: OECD Harmonized	Dow Chemical, (Miscellaneous	1983). Nonenymatic reductive dechlorinat	ion of chlorin	ated methanes and ethanes in aqueous solution with cover letter.
Template:				
HERO ID:	1973123			
		1	EVALUATIO	N
Domain		Metric	Rating	Comments
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			
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and appropriate, samples were collected at an appropriate frequency.
Domain 6: Confoundin	g/Variable Control			
Domain 0. Comoundain	Metric 13:	Confounding Variables	Medium	Uncertainty and variability were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presen	tation and Analysis			
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; extraction efficiency and limits of detection were not reported, but detector response was linear over concentration range.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method.
	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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OECD Harmonized	Monsanto, (1987). Miscellaneous	Monsanto Pensacola plant ground water ass	sessment feasibility study	with 19 chemicals with attachments and cover letter dated 121887.			
Template: HERO ID:	4214180						
			EXTRACTION				
Parameter		Data					
CASRN and Test Material		Not Reported; 1,1-dichloroethane					
Confidentiality, Type, Guid		None; Monitoring data and modeling; Monitor	ing data and modeling				
Solvent, Reactivity, Storage		NR; NR; NR; NR					
Radiolabel, Source, State, F		NR; Contaminated site; NR; NA Notes: NR					
Test Method Details, Test C Test Consistency Details	Condition Details, and	Monitoring sample from Monsanto Pensacola	Plant groundwater; NA; NR				
System Type Design		NR					
Sampling Frequency and Sa	ampling Details	NR; NR					
Test Temperature		NR					
Results Details		•		067 mg/L at Area 3; modeling results 0.0450 to 1.1E-6 mg/L			
Analytical Method and Ana	•	Assumed the Florida Groundwater and Surface	Quality Criteria in appendix	was used.; NR			
Transformation Products, S		NR; NR					
Reference Substance and R Substance Results	eference	NR; NR					
Substance Results							
			EVALUATION				
Domain		Metric	Rating	Comments			
				Comments			
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.			
Domain 1: Test Substand	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.			
Domain 1: Test Substand	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.			
Domain 1: Test Substand	Metric 1: Metric 2:	Test Substance Identity Test Substance Purity	High N/A	The test substance was identified definitively. This metric does not apply to this type of study.			
Domain 1: Test Substand	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Identity Test Substance Purity Study Controls	High N/A N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study.			
Domain 1: Test Substand	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability	High N/A N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study.			
Domain 1: Test Substand	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability	High N/A N/A N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study.			
Domain 1: Test Substand	Metric 1: Metric 2: Metric 3: Metric 4:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability	High N/A N/A N/A Uninformative	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study. Lack of information resulted in serious flaws that make the study unusable.			
Domain 1: Test Substand	Metric 1: Metric 2: Metric 3: Metric 4: ons Metric 5: Metric 5: Metric 6:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability Testing Conditions	High N/A N/A Uninformative Uninformative	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study. Lack of information resulted in serious flaws that make the study unusable. Lack of information resulted in serious flaws that make the study unusable.			
Domain 1: Test Substand Domain 2: Test Design Domain 3: Test Conditio	Metric 1: Metric 2: Metric 3: Metric 4: Ons Metric 5: Metric 5: Metric 6: Metric 7: Metric 8:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability Testing Conditions Testing Consistency	High N/A N/A Uninformative Uninformative N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study. Lack of information resulted in serious flaws that make the study unusable. Lack of information resulted in serious flaws that make the study unusable. This metric does not apply to this type of study.			
Domain 1: Test Substand Domain 2: Test Design Domain 3: Test Conditio	Metric 1: Metric 2: Metric 3: Metric 4: Metric 4: Metric 5: Metric 5: Metric 6: Metric 7: Metric 8: ms	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability Testing Conditions Testing Consistency System Type and Design	High N/A N/A N/A Uninformative Uninformative N/A N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study. Lack of information resulted in serious flaws that make the study unusable. Lack of information resulted in serious flaws that make the study unusable. This metric does not apply to this type of study. This metric does not apply to this type of study.			
Domain 1: Test Substand Domain 2: Test Design Domain 3: Test Condition Domain 4: Test Organist	Metric 1: Metric 2: Metric 3: Metric 4: Ons Metric 5: Metric 5: Metric 6: Metric 7: Metric 8:	Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability Testing Conditions Testing Consistency	High N/A N/A Uninformative Uninformative N/A	The test substance was identified definitively. This metric does not apply to this type of study. This metric does not apply to this type of study. This metric does not apply to this type of study. Lack of information resulted in serious flaws that make the study unusable. Lack of information resulted in serious flaws that make the study unusable. This metric does not apply to this type of study.			

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	N (1007		. continued from previous page			
Study Citation: OECD Harmonized	Monsanto, (1987). Monsanto Pensacola plant ground water assessment feasibility study with 19 chemicals with attachments and cover letter dated Miscellaneous					
Template:	Wilseenaneous					
HERO ID:	4214180					
			EVALUATION			
Domain		Metric	Rating	Comments		
Domain 5: Outcome As	ssessment					
	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	This metric does not apply to this type of study.		
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this type of study.		
Domain 7: Data Present	tation and Analysis					
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningfu interpretation of study results.		
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited statistical and/or kinetic details reported; however, these differences were not 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:	Results QSAR Models	N/A	This metric does not apply to this type of study.		
Overall Quali	ty Determin	nation	Uninformative			

Study Citation:	(1982). Fate of Pri	ority Pollutants in Publicly Owned Treatment Works, Volume I.		
OECD Harmonized	Miscellaneous			
Template:				
HERO ID:	1265686			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		Not Reported; 1,1-dichloroethane		
Confidentiality, Type, Guid	eline	None; experimental; experimental		
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR		
Radiolabel, Source, State, H	Purity	No; NR; NR; NR		
Test Method Details, Test C	Condition Details, and	influent, effluent and sludge samples from 50 treatment plants (plant descriptions are available); duplicate and field blanks were included; plant		
Test Consistency		treatments: primary (P); secondary activated sludge (AS); secondary trickling filter (TF); secondary oxygen activated sludge (OAS); secondary		
Details		rotating biological contactor (RBC); secondary aerated lagoon (AL); secondary parallel activated sludge and trickling filter (AS/TF); tertiary (T); not reported		
System Type Design		not reported		
Sampling Frequency and Frequency A	ampling Details	influent, effluent, sludge; in general: six consecutive days; 24 hour samples; more detail are available.		
Test Temperature		not applicable		
Results Details		not reported		
Analytical Method and Analytical Details		EPA volatile protocol; mean recovery 57-100% and $100\pm17\%$		
Transformation Products, S	statistics, and Kinetics	not applicable; % detection @ influent concentration: 31% @ 1-24 ug/L (POTW 1-40); 15% @ 1-87 ug/L (POTW 51-60); effluent concentrations: 8% @ 1-6 ug/L (POTW 1-40); not detected (POTW 51-60); sludge concentrations: 34% @ 1-2885 ug/L (POTW 1-40); 34% @ 5-777 ug/L (POTW 51-60); not reported		
Reference Substance and R Substance Results	eference	not applicable; Not Reported		

			EVALUATIO	N
Domain		Metric	Rating	Comments
Domain 1: Test Subs	tance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by common name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Desig	gn			
	Metric 3:	Study Controls	High	Concurrent blanks and controls were analyzed.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Cond	litions			
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions were documented.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

Domain 4: Test Organisms

		continu	ed from prev	vious page
Study Citation: OECD Harmonized	(1982). Fate of Pri Miscellaneous	iority Pollutants in Publicly Owned Treatr	nent Works, V	Volume I.
Template: HERO ID:	1265686			
		E	VALUATIO	N
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome 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 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: Confoundin	g/Variable Control			
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presen	tation and Analysis			
Domain 7. Data Presen	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	High	Reported values were expected.
	Metric 18:	Results QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quali	ty Determina	ation	High	

Study Citation:	NCBI, (2020). Pub	Chem database: compound summary: 1,1-dichloroethane.			
OECD Harmonized	D Harmonized Miscellaneous				
Template:					
HERO ID:	6629204				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		75-34-3; 1,1-DCA			
Confidentiality, Type, Guide	eline	None; Experimental; Experimental			
Solvent, Reactivity, Storage,	, Stability	NR; NR; NR			
Radiolabel, Source, State, Pr	urity	NR; NR; NR			
Test Method Details, Test Co Test Consistency	ondition Details, and	Pilot plant at landfill to treat contaminated groundwater, operated in 1986.; 70:1 air to water ratio; liquid flow rate 4 L/min, 1.3 ug/L saddles; Not reported			
Details System Type Design		System consisted of packed air stripping columns and two sequential granular activated carbon absorbers to treat off gases.			
Sampling Frequency and Sam	mpling Details	Not reported; Not reported			
Test Temperature		Not reported			
Results Details		Below detection limit (2 µg/L) in final effluent; removal efficiency 99.9%			
Analytical Method and Anal	lytical Details	Not reported; Not reported			
Transformation Products, St	atistics, and Kinetics	Not reported; Not reported; Not reported			
Reference Substance and Re Substance Results	eference	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 name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 3: Test Conditi	ions			
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 8:	System Type and Design	Medium	Rating of this factor is not applicable to this kind of information.
Domain 4: Test Organis	sms			
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
		Contin	ued on next page	•••

		con	tinued from previous	page
Study Citation:	NCBI, (2020).	PubChem database: compound summary	: 1,1-dichloroethane.	
OECD Harmonized	Miscellaneous			
Template:				
HERO ID:	6629204			
			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome A	ssessment			
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the primary source likely contains more detail.
Domain 6: Confoundin	Metric 13:		Medium	
	Metric 13: Metric 14:	Confounding Variables Health Outcomes Unrelated to	N/A	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 14:	Exposure	IN/A	The metric is not applicable to this study type.
		Exposure		
Domain 7: Data Prese	ntation and Analysi	8		
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; the primary source likely contains more detail.
	Metric 16:	Statistical Methods and	Medium	Not reported in this secondary source; the primary source likely contains more detail.
		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
	Metric 18:	Results QSAR Models	N/A	database or other secondary source. This metric does not apply to this type of study.
	Metrie 10.	20111 Models	10/1	This metre does not appry to this type of study.
Overall Qual	ity Determi	nation	Medium	

* Related References: Semovic L et al; Second International Conference on New Frontiers for Hazardous Waste Management p.409-18 (1987)

Study Citation:			minary findings of soil and gro	oundwater sampling, phase 2 investigation - BP chemicals (HITCO)		
OECD Harmonized	Inc., Gardena Calif., with cover letter dated 07/03/95. Miscellaneous					
Template:	Miscenaricous					
HERO ID:	1745857					
			EXTRACTION			
Parameter		Data				
CASRN and Test Material		not reported; 1,1-dichloroethane				
Confidentiality, Type, Guid	deline	None; Monitoring study; Monitoring s	tudy			
Solvent, Reactivity, Storag	e, Stability	NR; NR; NR; NR				
Radiolabel, Source, State,	Purity	NR; NR; NR; NR Notes: NR				
Test Method Details, Test Test Consistency	Condition Details, and	Soil and groundwater samples collecte	d from BP chemicals facility in Ga	ardena, CA; NR; NR		
Details System Type Design		NR				
Sampling Frequency and S	Sampling Details	NR; Groundwater collected as grab sa	mples			
Test Temperature	1 8	NR	1			
Results Details		1,1-DCA detected, but not quantified,	in groundwater at three sampling lo	ocation		
Analytical Method and An	alytical Details	Soil: EPA method 8240; groundwater:	• • • •			
Transformation Products, S	Statistics, and Kinetics	NR; NR; NR				
Reference Substance and F	Reference	NR; NR				
Substance Results						
			EVALUATION	_		
Domain		Metric	Rating	Comments		
Domain 1: Test Substar						
	Metric 1:	Test Substance Identity	High	The test substance was identified.		
	Metric 2:	Test Substance Purity	N/A	This metric is not applicable to this study.		
Domain 2: Test Design						
	Metric 3:	Study Controls	N/A	This metric is not applicable to this study.		
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this study.		

	Contin	nued on next page .	
Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this study.
Domain 4: Test Organisms			
Metric 8:	System Type and Design	N/A	This metric is not applicable to this study.
Metric 7:	Testing Consistency	N/A	This metric is not applicable to this study.
Metric 6:	Testing Conditions	Low	Field conditions not reported.
Metric 5:	Test Method Suitability	N/A	This metric is not applicable to this study.
Domain 3: Test Conditions			

		•••	continued from previous page	
Study Citation:	Pilko & Assoc. I	nc., (1995). Initial submission: Prelimi	nary findings of soil and ground	water sampling, phase 2 investigation - BP chemicals (HITCO)
OECD Harmonized	Inc., Gardena Cal Miscellaneous	if., with cover letter dated 07/03/95.		
Template:	Wilscenatieous			
HERO ID:	1745857			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study.
Domain 5: Outcome As	ssessment			
	Metric 11:	Test Substance Identity	Uninformative	No quantitative results reported.
	Metric 12:	Test Substance Purity	High	EPA Sampling methods reported.
Domain 6: Confounding	g/Variable Control			
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this study.
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric is not applicable to this study.
		Exposure		
Domain 7: Data Present	tation and Analysis			
	Metric 15:	Data Reporting	Uninformative	Quantitative results for target chemical not reported.
	Metric 16:	Statistical Methods and	N/A	This metric is not applicable to this study.
		Kinetic Calculations		
Domain 8: Other				
	Metric 17:	Verification or Plausibility of	Uninformative	Quantitative results for target chemical not reported.
	Metric 18:	Results QSAR Models	N/A	This metric is not applicable to this study.
Overall Quali	ty Determin	ation	Uninformative	

	Piwoni, M. D., Wilson, J. T., Walters, D. M., Wilson, B. H., Enfield, C. G. (1986). Behavior of organic pollutants during rapid-infiltration of wastewater into soil: I. Processes, definition, and characterization using a microcosm. Hazardous Waste and Hazardous Materials 3(1):43-55.				
	Miscellaneous				
Template:					
HERO ID:	5441706				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material		Not Reported; 1,1-dichloroethane			
Confidentiality, Type, Guidelin	ne	None; experimental; experimental			
Solvent, Reactivity, Storage, S		NR; NR; NR			
Radiolabel, Source, State, Pur	•	None: NR; NR			
Test Method Details, Test Con Test Consistency		wastewater application to soil columns to determine fate; designed to simulate a rapid-infiltration land-treatment system; Soil columns: 92% sand, 5.9% silt, 2.1% clay, 0.087% organic carbon; pH 7.7; CEC 3.5 mmolg/l00 g; 12 hour illumination; 4.4±0.17 cm of wastewater applied/day.			
Details		Expected concentration 21.0 umol/L; test done in triplicate			
System Type Design		Soil columns planted with grass; illuminated with fluorescent lamps; enclosed in a greenhouse flushed with room air; foil covered columns to prevent algae growth.			
Sampling Frequency and Samp	pling Details	not reported; suction samplers were mid soil level.			
Test Temperature		20±2 °C			
Results Details		volatilized: $54\pm15\%$; effluent: $27\pm9\%$; not accounted for: $19\pm12\%$			
Analytical Method and Analytical Details		GC; not reported			
Transformation Products, Stat	tistics, and Kinetics	not reported; Not Reported; Not Reported			
Reference Substance and Reference Substance Results		system run with spring water; effluent: 30%			

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the omissions or identified impurities were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Concurrent controls were run.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
Metric 7:	Testing Consistency	High	Test conditions were consistent.
		Continued on next page	

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Study Citation:		ilson, J. T., Walters, D. M., Wilson, B. H., I sses, definition, and characterization using a		avior of organic pollutants during rapid-infiltration of wastewater aste and Hazardous Materials 3(1):43-55.
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5441706			
			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organis	ms			
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome As	sessment			
Domain 5. Outcome As	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome(s) of interest. This a serious flaw that makes the study unusable.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding	y/Variable Control			
2 011111 01 00110111011	Metric 13:	Confounding Variables	Low	Sources of uncertainty in the measurements were not accounted for in data evaluation resulting in some uncertainty and there is concern that uncertainty was likely to have a substantial impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Present	ation and Analysis			
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappear- ance was not likely due to some other process and these omissions were likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was no possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Study Citation:	Ravi, V., Chen. J. S	S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the	
-	KL landfill. Bioremediation Journal 2(3-4):239-258.		
OECD Harmonized	Miscellaneous		
Template:			
HERO ID:	5441923		
		EXTRACTION	
Parameter		Data	
CASRN and Test Material		Not Reported; 1,1-DCA	
Confidentiality, Type, Guid	leline	No; Attenuation rate; Attenuation rate	
Solvent, Reactivity, Storage	e, Stability	NR; NR; NR	
Radiolabel, Source, State, I	Purity	NR; NR; NR Notes: NR	
Test Method Details, Test C Test Consistency Details System Type Design	Condition Details, and	Method based on Buscheck and Alcantar (1995) which involves a one-dimensional analytical model that accounts for advection, dispersion, and first-order degradation along the flowpath from the source. The model assumes that the source is at constant concentration and that the downgradient concentration distribution is at steady state.; NR; NR NR	
Sampling Frequency and S	ampling Details	three separate sampling events, one in March 1993, one in November/December 1994, and one in October 1996; Groundwater sampled from KL Landfill site west of Kalamazoo, Michigan at 10-ft vertical intervals using a discrete vertical sampling technique using a dual-tube reverse circulation air-rotary drill. Samples were taken every 10 ft and collected from the inner tube with a point-source bailer. Samples taken from two permanent monitoring wells.	
Test Temperature		NR	
Results Details		NR	
Analytical Method and Ana	alytical Details	NR; NR	
Transformation Products, S	Statistics, and Kinetics	reductive dechlorination to chloroethane and further dechlorination to ethane or abiotic hydrolysis to ethanol; NR; Attenuation Rate Constant: 0.39 +/-0.21 /year	
Reference Substance and R Substance Results	Reference	NR; NR	

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substa	ince			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance and purity are not reported but unlikely to have an impact on the results.
Domain 2: Test Design	n			
	Metric 3:	Study Controls	N/A	This metric does not apply to this study type.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Condi	tions			
	Metric 5:	Test Method Suitability	Medium	The test method appears to be suitable; however there are some omissions in the method details.
	Metric 6:	Testing Conditions	N/A	Testing conditions were not reported.
			Continued on next page	

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		continu	ued from previous	page		
Study Citation:	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.					
OECD Harmonized	Miscellaneous					
Template:						
HERO ID:	5441923					
		I	EVALUATION			
Domain		Metric	Rating	Comments		
	Metric 7:	Testing Consistency	N/A	Testing consistency was not reported.		
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported and assumptions were made for monitoring/field samples.		
Domain 4: Test Organis	sms					
2 onium in 1000 organic	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 As						
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of		
	Metric 12:	Test Substance Purity	Medium	interest. The sampling method appears to be reasonable but some details were not reported.		
	Wetter 12.		Wiedrum	The sampling method appears to be reasonable but some details were not reported.		
Domain 6: Confounding	g/Variable Control					
·	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.		
	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					
	Metric 15:	Data Reporting	Medium	Insufficient evidence or supporting information was presented.		
	Metric 16:	Statistical Methods and	Medium	Calculations were described briefly.		
		Kinetic Calculations		······································		
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	The study results appear to be reasonable.		
	Metric 18:	Results QSAR Models	N/A	This metric does not apply to this study type.		
				The metre core not upply to uno study type.		
Overall Quali	ty Determin	ation	Medium			

Study Citation:	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.				
OECD Harmonized	Miscellaneous				
Template:					
HERO ID:	5441923				
		EXTRACTION			
Parameter		Data			
CASRN and Test Material	1.	Not Reported; 1,1-DCA			
Confidentiality, Type, Guid		No; Attenuation rate; Attenuation rate			
Solvent, Reactivity, Storage		NR; NR; NR			
Radiolabel, Source, State, I		NR; NR; NR Notes: NR			
Test Method Details, Test C Test Consistency Details	Condition Details, and	Method based on Buscheck and Alcantar (1995) which involves a one-dimensional analytical model that accounts for advection, dispersion, and first-order degradation along the flowpath from the source. The model assumes that the source is at constant concentration and that the downgradient concentration distribution is at steady state.; NR; NR			
System Type Design		NR			
Sampling Frequency and S	ampling Details	three separate sampling events, one in March 1993, one in November/December 1994, and one in October 1996; Groundwater sampled from KL Landfill site west of Kalamazoo, Michigan at 10-ft vertical intervals using a discrete vertical sampling technique using a dual-tube reverse circulation air-rotary drill. Samples were taken every 10 ft and collected from the inner tube with a point-source bailer.			
Test Temperature		NR			
Results Details		NR			
Analytical Method and Ana	alytical Details	NR; NR			
Transformation Products, S	,	reductive dechlorination to chloroethane and further dechlorination to ethane or abiotic hydrolysis to ethanol; NR; Attenuation Rate Constant: 0.52 +/-0.29 /year			
Reference Substance and R Substance Results	leference	NR; NR			

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Subs	stance			
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance and purity are not reported but unlikely to have an impact on the results.
Domain 2: Test Desi	ign			
	Metric 3:	Study Controls	N/A	This metric does not apply to this study type.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Con	ditions			
	Metric 5:	Test Method Suitability	Medium	The test method appears to be suitable; however there are some omissions in the method details.
	Metric 6:	Testing Conditions	N/A	Testing conditions were not reported.
	Metric 7:	Testing Consistency	N/A	Testing consistency was not reported.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported and assumptions were made for monitoring/field samples.

		contin	ued from previous	page		
Study Citation:	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.					
OECD Harmonized	Miscellaneous					
Template:						
HERO ID:	5441923					
		Ι	EVALUATION			
Domain		Metric	Rating	Comments		
Domain 4: Test Organis	sms					
	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 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	Medium	The sampling method appears to be reasonable but some details were not reported.		
Domain 6: Confounding	g/Variable Control					
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.		
	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					
	Metric 15:	Data Reporting	Medium	Insufficient evidence or supporting information was presented.		
	Metric 16:	Statistical Methods and	Medium	Calculations were described briefly.		
		Kinetic Calculations				
Domain 8: Other						
	Metric 17:	Verification or Plausibility of	Medium	The study results appear to be reasonable.		
	Metric 18:	Results QSAR Models	N/A	This metric does not apply to this study type.		
Overall Quali	ty Determin	ation	Medium			

Study Citation:	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.			
OECD Harmonized				
Template:				
HERO ID:	5441923			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		Not Reported; 1,1-DCA		
Confidentiality, Type, Guid	leline	No: Attenuation rate:		
Solvent, Reactivity, Storage		NR; NR; NR		
Radiolabel, Source, State, I		NR; NR; NR Notes: NR		
Test Method Details, Test Condition Details, and Test Consistency		Method based on Wiedemeier et al. (1996) which involves the use of a tracer that is recalcitrant to biodegradation.; NR; NR		
Details System Type Design		NR		
Sampling Frequency and Sampling Details		three seperate sampling events, one in March 1993, one in November/December 1994, and one in October 1996; Groundwater sampled from KL Landfill site west of Kalamazoo, Michigan at 10-ft vertical intervals using a discrete vertical sampling technique using a dual-tube reverse circulation air-rotary drill. Samples were taken every 10 ft and collected from the inner tube with a point-source bailer.		
Test Temperature		NR		
Results Details		NR		
Analytical Method and Ana	alytical Details	NR; NR		
Transformation Products, S	statistics, and Kinetics	reductive dechlorination to chloroethane and further dechlorination to ethane or abiotic hydrolysis to ethanol; NR; Attenuation Rate Constant: 0.50 +/-0.41 /year		
Reference Substance and Reference Substance Results		NR; NR		

			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	The test substance and purity are not reported but unlikely to have an impact on the results.
Domain 2: Test Design	1			
	Metric 3:	Study Controls	N/A	This metric does not apply to this study type.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Condit	tions			
	Metric 5:	Test Method Suitability	Medium	The test method appears to be suitable; however there are some omissions in the method details.
	Metric 6:	Testing Conditions	N/A	Testing conditions were not reported.
	Metric 7:	Testing Consistency	N/A	Testing consistency was not reported.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported and assumptions were made for monitoring/field samples.

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			ed from previous	page	
Study Citation:	Ravi, V., Chen, J. S., Wilson, J. T., Johnson, J. A., Gierke, W., Murdie, L. (1998). Evaluation of natural attenuation of benzene and dichloroethanes at the KL landfill. Bioremediation Journal 2(3-4):239-258.				
OECD Harmonized	Miscellaneous				
Template:					
HERO ID:	5441923				
		ŀ	EVALUATION		
Domain		Metric	Rating	Comments	
Domain 4: Test Organis	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 As	sessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.	
	Metric 12:	Test Substance Purity	Medium	The sampling method appears to be reasonable but some details were not reported.	
Domain 6: Confounding	/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.	
	Metric 14:	Health Outcomes Unrelated to	N/A	This metric does not apply to this study type.	
		Exposure			
Domain 7: Data Present	ation and Analysis				
	Metric 15:	Data Reporting	Medium	Insufficient evidence or supporting information was presented.	
	Metric 16:	Statistical Methods and	Medium	Calculations were described briefly.	
		Kinetic Calculations			
Domain 8: Other					
	Metric 17:	Verification or Plausibility of	Medium	The study results appear to be reasonable.	
	Metric 18:	Results QSAR Models	N/A	This metric does not apply to this study type.	
Overall Qualit	v Determin	ation	Medium		

review. Groundwate		(1996). Gas partitioning of dissolved volatile organic compounds in the vadose zone: Principles, temperature effects and literature ter 34(4):709-718.		
OECD Harmonized Miscellaneous				
Template: HERO ID:	647200			
		EXTRACTION		
Parameter		Data		
CASRN and Test Material		Not Reported; 1,1-Dichloroethane		
Confidentiality, Type, Guideline		None; Experimental; Experimental		
Solvent, Reactivity, Storage, Stability		NA; NA; NA		
Radiolabel, Source, State,	Purity	NA; NA; NA Notes: NA		
Test Method Details, Test (Test Consistency	Condition Details, and	Calculation of enthalpy and entropy of volatilization; NR; NA		
Details System Type Design		NA		
Sampling Frequency and S	ampling Details	NA; NA		
Test Temperature	1 0	NA		
Results Details		Enthalpy of volatilization = 33.18 kJ/M and entropy of volatilization = 68.2 J/MK		
Analytical Method and An	alytical Details	NA; NA		
Transformation Products, S	Statistics, and Kinetics	NA; NA; NA		
Reference Substance and F Substance Results	Reference	NA; NA		

Ľ	VALUATIO	N	
Metric	Rating	Comments	
Test Substance Identity	High	The test substance was identified definitively.	
Test Substance Purity	N/A	The metric is not applicable to this study type.	
Study Controls	N/A	The metric is not applicable to this study type.	
Test Substance Stability	N/A	The metric is not applicable to this study type.	
Test Method Suitability	N/A	The metric is not applicable to this study type.	
Testing Conditions	N/A	The metric is not applicable to this study type.	
Testing Consistency	N/A	The metric is not applicable to this study type.	
System Type and Design	N/A	The metric is not applicable to this study type.	
Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.	
Contin	ued on next	Dage	
	Metric Test Substance Identity Test Substance Purity Study Controls Test Substance Stability Test Method Suitability Testing Conditions Testing Consistency System Type and Design Outcome Assessment Methodology	MetricRatingTest Substance Identity Test Substance PurityHigh N/AStudy Controls Test Substance StabilityN/ATest Method Suitability Testing Conditions System Type and DesignN/AOutcome Assessment MethodologyN/A	Test Substance Identity High The test substance was identified definitively. Test Substance Purity N/A The metric is not applicable to this study type. Study Controls N/A The metric is not applicable to this study type. Test Substance Stability N/A The metric is not applicable to this study type. Test Method Suitability N/A The metric is not applicable to this study type. Testing Conditions N/A The metric is not applicable to this study type. Testing Consistency N/A The metric is not applicable to this study type. System Type and Design N/A The metric is not applicable to this study type.

		con	tinued from prev	vious page	
Study Citation:	-	Washington, J. W. (1996). Gas partitioning of dissolved volatile organic compounds in the vadose zone: Principles, temperature effects and literature review. Groundwater 34(4):709-718.			
OECD Harmonized Template:	Miscellaneous				
HERO ID:	647200				
			EVALUATIO	N	
Domain		Metric	Rating	Comments	
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.	
Domain 5: Outcome A	Assessment				
	Metric 11:	Test Substance Identity	Low	Enthalpy and entropy data presented in support of volatilization estimates.	
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.	
Domain 6: Confoundi	ng/Variable Contro	1			
	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 Prese	ntation and Analysi	is			
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.	
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.	
Domain 8: Other					
	Metric 17:	Verification or Plausibility of	Medium	No serious study deficiencies were identified, and the value was plausible.	
	Metric 18:	Results QSAR Models	N/A	A QSAR model was not reported.	
Overall Qual	ity Determi	ination	Low		

Study Citation:			groundwater: AT&T I	nformation Systems Skokie Works with attachments, cover sheet and
OECD Harmonized	letter dated 020 Other Propertie	690. S		
Template:	Other Propertie	8		
HERO ID:	1745629			
	1743029			
			EXTRACTION	
Parameter		Data		
CASRN and Test Material		NR; 1,1-dichloroethane		
Confidentiality, Type, Guid	leline	None; experimental; None, monitoring study		
Solvent, Reactivity, Storage	e, Stability	NA; NA; NA; NA		
Radiolabel, Source, State, I	Purity			rans-1,2-DCE and vinyl chloride detected in groundwater downgradient -trichloroethane and trichloroethene was nearby) 1,1,2-TCE not detected
Results Value		Subsurface transport and likely degradation		
Results Details		1 , 6	ing the soils suggest the	chlorinated solvents are recalcitrant without nutrients.
Results Remarks		Not Reported		
			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 of the test material was reported.
Domain 2: Test Design				
-	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
		Test Substance Stability	N/A	
	Metric 4:	Test Substance Stability	IN/A	The metric is not applicable to this study type.
Domain 3: Test Conditio		Test Substance Stability	IV/A	The metric is not applicable to this study type.
Domain 3: Test Condition		Test Method Suitability	High	The metric is not applicable to this study type. The test method was suitable for the test substance.
Domain 3: Test Conditio	ons	-		
Domain 3: Test Conditio	ons Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance. The study used monitoring data and unknown deviations in test conditions may have a
Domain 3: Test Conditio	ons Metric 5: Metric 6:	Test Method Suitability Testing Conditions	High Low	The test method was suitable for the test substance. The study used monitoring data and unknown deviations in test conditions may have a substantial impact on the results. There were possible inconsistencies in test conditions across samples or study groups
	ons Metric 5: Metric 6: Metric 7: Metric 8:	Test Method Suitability Testing Conditions Testing Consistency	High Low Low	The test method was suitable for the test substance. The study used monitoring data and unknown deviations in test conditions may have a substantial impact on the results. There were possible inconsistencies in test conditions across samples or study groups that are likely to have a substantial impact on results.
Domain 3: Test Conditio Domain 4: Test Organis	ons Metric 5: Metric 6: Metric 7: Metric 8:	Test Method Suitability Testing Conditions Testing Consistency	High Low Low	The test method was suitable for the test substance. The study used monitoring data and unknown deviations in test conditions may have a substantial impact on the results. There were possible inconsistencies in test conditions across samples or study groups that are likely to have a substantial impact on results.

			. continued from previous page				
Study Citation:	ENSR, (1990). S	ENSR, (1990). Subsurface investigation chlorinated solvents in groundwater: AT&T Information Systems Skokie Works with attachments, cover sheet and					
OECD Harmonized Template:	letter dated 0206 Other Properties	90.					
HERO ID:	1745629						
			EVALUATION				
Domain		Metric	Rating	Comments			
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results.			
	Metric 12:	Test Substance Purity	High	No notable uncertainties or limitations in sampling methods were expected to influence results.			
Domain 6: Confoundin	g/Variable Control						
	Metric 13:	Confounding Variables	Low	There is concern that variability or uncertainty was likely to have a substantial impact on the results			
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.			
Domain 7: Data Presen	tation and Analysis						
	Metric 15:	Data Reporting	Uninformative	Quantitative concentrations of the target chemical, transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.			
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	No statistical analyses were conducted; however, sufficient data were provided to con- duct an independent statistical analysis.			
Domain 8: Other							
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.			
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.			
Overall Quali	ty Determin	ation	Uninformative				

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

	continued from previous page
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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