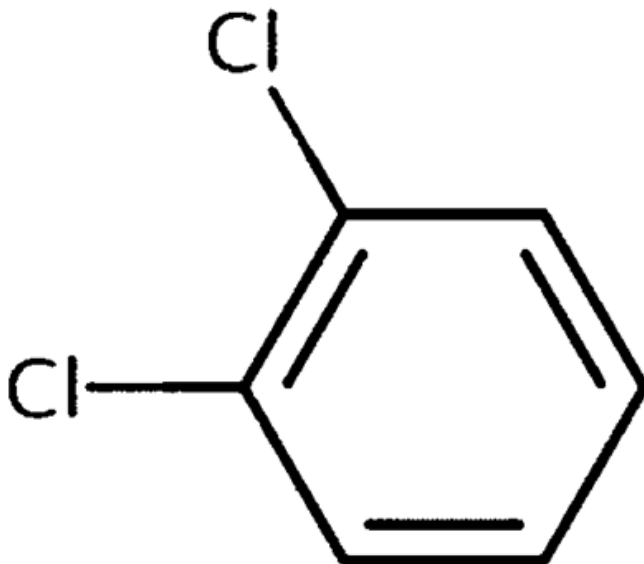

**Draft Data Quality Evaluation and Data Extraction Information for
Environmental Fate and Transport for
o-Dichlorobenzene**

Systematic Review Support Document for the Draft Risk Evaluation

CASRN: 95-50-1



June 2026

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

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HERO ID	Reference	Page
Photolysis in Air		
1482693	Dilling, W. L., Gonsior, S. J., Boggs, G. U., Mendoza, C. G. (1988). Organic photochemistry. 20. A method for estimating gas-phase rate constants for reactions of hydroxyl radicals with organic compounds from their relative rates of reaction with hydrogen peroxide under photolysis in 1,1,2-trichlorotrifluoroethane solution. Environmental Science & Technology 22(12):1447-1453.	10
660158	Klamt, A. (1993). Estimation of gas-phase hydroxyl radical rate constants of organic compounds from molecular orbital calculations. Chemosphere 26(7):1273-1289.	13
660160	Kochany, J., Bolton, J. R. (1992). Mechanism of photodegradation of aqueous organic pollutants: 2. Measurement of the primary rate constants for reaction of hydroxy radicals with benzene and some halobenzenes using an EPR spin-trapping method following the photolysis of hydrogen peroxide. Environmental Science & Technology 26(2):262-265.	15
5253125	Wahner, A., Zetzsch, C. (1981). Reactions of disubstituted benzenes with OH in the gas phase: Benzene, o-, m-, and p-dichlorobenzene, and p-chloroaniline. :138.	17
Hydrolysis		
5345879	Schoeller, K., Horn, E. M. (1984). [Hydrolysis of ortho-dichlorobenzene-water-mixtures in neutral to acid conditions and its importance when selecting materials of construction]. Materials and Corrosion 35(9):401-406.	19
5113349	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).	21
Photolysis in Water		
1942833	Klán, P., Del Favero, D., Ansorgová, A., Klánová, J., Holoubek, I. (2001). Photodegradation of halobenzenes in water ice. Environmental Science and Pollution Research 8(3):195-200.	28
5254143	Kochany, J., Bolton, J. R. (1992). Mechanism of Photodegradation of Aqueous Organic Pollutants, 2: Measurement of the Primary Rate Constants for Reaction of OH Radicals with Benzene and Some Halobenzenes Using an EPR Spin-Trapping Method Following the Photolysis of H ₂ O ₂ . Environmental Science and Technology 26(2):262-265.	30
Photolysis in Soil		
Biodegradation in Water		
4140320	Davis, E. M., Murray, H. E., Liehr, J. G. (1981). Basic microbial degradation rates and chemical byproducts of selected organic compounds.	32
4908945	Dermietzel, J., Vieth, A. (2002). Chloroaromatics in groundwater: chances of bioremediation. Environmental Geology 41(6):683-689.	34
4908757	Herrington, R. T., Hicks, J., Downey, D., Spain, J., Nishino, S., Becvar, E. (2000). Natural attenuation of chlorinated benzenes at a former disposal site. (3):175-184.	36
1333626	Kondo, M., Nishihara, T., Shimamoto, T., Koshikawa, T., Itio, T., Sawamura, R., Tanaka, K. (1988). [Biodegradation test of chemicals by cultivation methods]. Eisei Kagaku / Journal of Hygienic Chemistry 34(2):188-195.	39
5254832	Macintyre, W. G., Boggs, M., Antworth, C. P., Stauffer, T. B. (1993). Degradation kinetics of aromatic organic solutes introduced into a heterogeneous aquifer. Water Resources Research 29(12):4045-4051.	41
4929993	Monsanto Industrial Chem Co, (1976). Biodegradability of process and related chemicals.	43
4931835	Naziruddin, M., Grady, C. P. L., Jr, Tabak, H. H. (1995). Determination of biodegradation kinetics of volatile organic compounds through the use of respirometry. Water Environment Research 67(2):151-158.	45

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1486742	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. <i>Environmental Science & Technology</i> 30(1):31-37.	48
5185291	Stauffer, T. B., Antworth, T. B., Boggs, J. M., Macintyre, W. G. (1994). A natural gradient tracer experiment in a heterogeneous aquifer with measured in situ biodegradation rates: a case for natural attenuation. :73-84.	50
3089997	Tabak, H. H., Chambers, C. W., Kabler, P. W. (1964). MICROBIAL METABOLISM OF AROMATIC COMPOUNDS. I. DECOMPOSITION OF PHENOLIC COMPOUNDS AND AROMATIC HYDROCARBONS BY PHENOL-ADAPTED BACTERIA. <i>Journal of Bacteriology</i> 87:910-919.	53
9861	Tabak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. <i>Journal of Water Pollution Control Federation</i> 53(10):1503-1518.	56
5113349	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).	58
1335265	Union Carbide, (1974). Environmental impact analysis product biodegradability testing.	64
5257747	Wilson, J. T., Smith, G. B., Cochran, J. W., Barker, J. F., Roberts, P. V. (1987). Field evaluation of a simple microcosm simulating the behaviour of volatile organic compounds in subsurface materials. <i>Water Resources Research</i> 23(8):1547-1553.	66
Biodegradation in Sediment		
5252376	Clover, C. C., Jackson, W., Pardue, J. H. (1998). Natural attenuation of mono- and dichlorobenzenes in anaerobic surface sediments at the petro processors site. :75.	68
5276512	Jackson, W., Pardue, J. H. (1999). Natural attenuation case study for chlorobenzenes in a forested wetland. n/a:9.	71
2298564	Kirk, P. W. W., Rogers, H. R., Lester, J. N. (1989). Fate of chlorobenzenes and permethrins during anaerobic sewage sludge digestion. <i>Chemosphere</i> 18(9):1771-1784.	73
4931552	Kuhn, E. P., Colberg, P. J., Schnoor, J. L., Wanner, O., Zehnder A, J. B., Schwarzenbach, R. P. (1985). Microbial transformations of substituted benzenes during infiltration of river water to groundwater laboratory column studies. <i>Environmental Science & Technology</i> 19(10):961-968.	75
4912116	Luo, J., Kurt, Z., Hou, D., Spain, J. C. (2015). Modeling aerobic biodegradation in the capillary fringe. <i>Environmental Science & Technology</i> 49(3):1501-1510.	78
660279	Masunaga, S., Susarla, S., Yonezawa, Y. (1996). Dechlorination of chlorobenzenes in anaerobic estuarine sediment. <i>Water Science and Technology</i> 33(6):173-180.	81
1486742	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. <i>Environmental Science & Technology</i> 30(1):31-37.	83
1482449	Nielsen, P. H., Christensen, T. H. (1994). Variability of biological degradation of aromatic hydrocarbons in an aerobic aquifer determined by laboratory batch experiments. <i>Journal of Contaminant Hydrology</i> 15(4):305-320.	85
4272187	Qiao, W., Luo, F., Lomheim, L., Mack, E. E., Ye, S., Wu, J., Edwards, E. A. (2018). Natural attenuation and anaerobic benzene detoxification processes at a chlorobenzene-contaminated industrial site inferred from field investigations and microcosm studies. <i>Environmental Science & Technology</i> 52(1):22-31.	87
1333014	Roy F. Weston Inc, (1980). Characterization and fate of the discharge of priority pollutants from the Rohm and Haas Philadelphia plant into the Delaware low level collector of the Philadelphia sewer.	90
1467139	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. <i>New Biotechnology</i> 30(1):80-87.	92
1969905	Susarla, S., Masunaga, S., Yonezawa, Y. (1996). Biotransformation of halogenated benzenes in anaerobic sediments. <i>Environmental Science and Pollution Research</i> 3(2):71-74.	106

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660558	Susarla, S., Masunaga, S., Yonezawa, Y. (1997). Kinetics of the Sequential Dechlorination of Chloroorganics in an Anaerobic Sediment. <i>Bulletin of Environmental Contamination and Toxicology</i> 58(2):227-233.	108
5237531	Susarla, S., Yonezawa, Y., Masunaga, S. (1998). Reductive transformations of halogenated aromatics in anaerobic estuarine sediment: Kinetics, products and pathways. <i>Water Research</i> 32(3):639-648.	110
Biodegradation in Soil		
659847	Brunsbach, F. R., Reineke, W. (1994). Degradation of chlorobenzenes in soil slurry by a specialized organism. <i>Applied Microbiology and Biotechnology</i> 42(2-3):415-420.	112
1359392	Demirjian, Y. A., Joshi, A. M., Westman, T. R. (1987). Fate of organic compounds in land application of contaminated municipal sludge. <i>Journal of Water Pollution Control Federation</i> 59(1):32-38.	114
1752483	Kurt, Z., Spain, J. C. (2013). Biodegradation of chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in the vadose zone. <i>Environmental Science & Technology</i> 47(13):6846-6854.	116
2725058	Meharg, A. A., Wyatt, C. L., Thompson, I. P., Bailey, M. J., Ellis, R. J., Maguire, N. (1998). Response of soil microbial biomass to 1,2-dichlorobenzene addition in the presence of plant residues. <i>Environmental Toxicology and Chemistry</i> 17(8):1462-1468.	119
647132	Van Der Meer, J. R., Bosma, T. N., De Bruin, W. P., Harms, H., Holliger, C., Rijnaarts, H. H., Tros, M. E., Schraa, G., Zehnder, A. J. (1992). Versatility of soil column experiments to study biodegradation of halogenated compounds under environmental conditions. <i>Biodegradation</i> 3(2-3):265-284.	122
Aquatic Bioconcentration		
18050	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (<i>Lepomis macrochirus</i>). :379-392.	126
1333375	Casserly, D. M., Davis, E. M., Downs, T. D., Guthrie, R. K. (1983). Sorption of organics by <i>Selenastrum capricornutum</i> . <i>Water Research</i> 17(11):1591-1594.	128
1992457	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge <i>Chironomus decorus</i> . <i>Ecotoxicology and Environmental Safety</i> 15(2):226-241.	130
2048335	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.	134
4159607	Oliver, B. G., Niimi, A. J. (1983). Bioconcentration of chlorobenzenes from water by rainbow trout: correlations with partition coefficients and environmental residues. <i>Environmental Science & Technology</i> 17(5):287-291.	136
660424	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. <i>Journal of AOAC International</i> 75(5):916-924.	140
654569	Sum, D. T. H., M. Schipper, M., Opperhuizen, A. (1993). Toxicokinetics of halogenated benzenes in fish: Lethal body burden as a toxicological end point. <i>Environmental Toxicology and Chemistry</i> 12(6):1117-1127.	144
5113349	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).	148
1982535	Wang, X. L., Ma, Y. J., Yu, W. J., Geyer, H. J. (1997). Two-compartment thermodynamic model for bioconcentration of hydrophobic organic chemicals by alga: Quantitative relationship between bioconcentration factor and surface area of marine algae or octanol/water partition coefficient. <i>Chemosphere</i> 35(8):1781-1797.	151
1998227	Wolf, S. D., Lassiter, R. R., Wooten, S. E. (1991). Predicting chemical accumulation in shoots of aquatic plants. <i>Environmental Toxicology and Chemistry</i> 10(5):665-680.	153
5257521	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. <i>Journal of Ocean University of Qingdao</i> 1(1):71-79.	156

Table of Contents

3607057	Zhang, S., Lin, D., Wu, F. (2016). The effect of natural organic matter on bioaccumulation and toxicity of chlorobenzenes to green algae. <i>Journal of Hazardous Materials</i> 311:186-193.	166
Terrestrial Bioconcentration		
660566	Tam, D. D., Shiu, W. Y., Qiang, K., Mackay, D. (1996). Uptake of chlorobenzenes by tissues of the soybean plant: Equilibria and kinetics. <i>Environmental Toxicology and Chemistry</i> 15(4):489-494.	168
647188	Wang, M. J., Jones, K. C. (1994). Uptake of chlorobenzenes by carrots from spiked and sewage sludge-amended soil. <i>Environmental Science & Technology</i> 28(7):1260-1267.	170
1003825	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. <i>Chemosphere</i> 53(5):583-591.	172
Adsorption and Desorption		
5344521	Brown, R. A., Culver, T. B., Smith, J. A. (1999). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil in a column system. :106-110.	174
1487294	Carmichael, L. M., Smith, T. G., Pardieck, D. L. (1999). Site-specific sorption values for mixtures of volatile and semivolatile organic compounds in sandy soils. <i>Journal of Environmental Quality</i> 28(3):888-897.	176
652333	Chen, W., Kan, A. T., Fu, G., Vignona, L. C., Tomson, M. B. (1999). Adsorption-desorption behaviors of hydrophobic organic compounds in sediments of Lake Charles, Louisiana, USA. <i>Environmental Toxicology and Chemistry</i> 18(8):1610-1616.	180
2801853	Chiou, C. T., Kile, D. E., Malcolm, R. L. (1988). Sorption of vapors of some organic liquids on soil humic acid and its relation to partitioning of organic compounds in soil organic matter. <i>Environmental Science & Technology</i> 22(3):298-303.	182
18016	Chiou, C. T., Peters, L. J., Freed, V. H. (1979). A physical concept of soil-water equilibria for nonionic organic compounds. <i>Science</i> 206(4420):831-832.	185
5178813	Chiou, C. T., Porter, P. E., Schmedding, D. W. (1983). Partition equilibriums of nonionic organic compounds between soil organic matter and water. <i>Environmental Science & Technology</i> 17(4):227-231.	187
3546079	Culver, T. B., Brown, R. A., Smith, J. A. (2000). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil column. <i>Environmental Science & Technology</i> 34(12):2446-2452.	189
5252509	Curtis, G. P., Roberts, P. V., Reinhard, M. (1986). A natural gradient experiment on solute transport in a sand aquifer. 4. Sorption of organic solutes and its influence on mobility. <i>Water Resources Research</i> 22(13):2059-2067.	191
5252498	Curtis, G., Roberts, P., Reinhard, M. (1985). Sorption of organic solutes: Comparison between laboratory-estimated retardation factors and field observations. :35-38.	193
3568671	Deitsch, J. J., Smith, J. A., Arnold, M. B., Bolus, J. (1998). Sorption and desorption rates of carbon tetrachloride and 1,2-dichlorobenzene to three organobentonites and a natural peat soil. <i>Environmental Science & Technology</i> 32(20):3169-3177.	195
3545787	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. <i>Environmental Science & Technology</i> 34(8):1469-1476.	197
1487161	Kan, A. T., Fu, G., Hunter, M., Chen, W., Ward, C. H., Tomson, M. B. (1998). Irreversible sorption of neutral hydrocarbons to sediments: Experimental observations and model predictions. <i>Environmental Science & Technology</i> 32(7):892-902.	207
3569765	Kile, D. E., Chiou, C. T., Zhou, H., Li, H., Xu, O. (1995). Partition of nonpolar organic pollutants from water to soil and sediment organic matters. <i>Environmental Science & Technology</i> 29(5):1401-1406.	209
1962773	Kleineidam, S., Schuth, C., Grathwohl, P. (2002). Solubility-normalized combined adsorption-partitioning sorption isotherms for organic pollutants. <i>Environmental Science & Technology</i> 36(21):4689-4697.	211
1992457	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge <i>Chironomus decorus</i> . <i>Ecotoxicology and Environmental Safety</i> 15(2):226-241.	213
2048335	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.	215

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5345712	Liu, D., Yan, J., Jin, J., Ding, C., Sun, Y. (2013). Removal of 1, 2-dichlorobenzene (1, 2-DCB) by native and heat-treated anaerobic sludge. :558-564.	217
5254759	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.	219
5254877	Masunaga, S., Urushigawa, Y., Yonezawa, Y. (1991). The behaviour of chlorobenzenes in Ise bay, estimated from their concentration in various environmental media. Water Research 25(3):289-297.	231
660282	Masunaga, S., Yonezawa, Y., Urushigawa, Y., Fukui, M. (1996). Partitioning of chlorobenzenes between suspended particulates and water in coastal waters. Journal of Environmental Science and Health, Part A: Environmental Science and Engineering & Toxic and Hazardous Substance Control 31(4):887-903.	233
5278134	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.	236
1486725	Poole, S. K., Poole, C. F. (1996). Model for the sorption of organic compounds by soil from water. Analytical Communications 33(12):417-419.	244
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.	246
660424	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.	248
5243763	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.	250
5248629	Ran, Y., Xiao, B. H., Fu, J. M., Sheng, G. Y. (2003). Sorption and desorption hysteresis of organic contaminants by kerogen in a sandy aquifer material. Chemosphere 50(10):1365-1376.	256
5243765	Ran, Y., Xiao, B., Huang, W., Peng, P., Liu, D., Fu, J., Sheng, G. (2003). Organic compounds in the environment: kerogen in aquifer material and its strong sorption for nonionic organic pollutants. Journal of Environmental Quality 32(5):1701-1709.	258
3562100	Ran, Y., Xing, B. S., Rao, P. S. C., Sheng, G. Y., Fu, J. M. (2005). Sorption kinetics of organic contaminants by sandy aquifer and its kerogen isolate. Environmental Science & Technology 39(6):1649-1657.	260
1968187	Sacan, M. T., Balcioglu, I. A. (1996). Prediction of the soil sorption coefficient of organic pollutants by the characteristic root index model. Chemosphere 32(10):1993-2001.	262
5249250	Smith, J. A., Deitsch, J. J. (2004). Distributed-rate model configured in series to simulate sorption of organic pollutants to natural soil. Bulletin of Environmental Contamination and Toxicology 72(1):94-100.	264
1486153	Stauffer, T. B., Macintyre, W. G. (1986). Sorption of low-polarity organic compounds on oxide minerals and aquifer material. Environmental Toxicology and Chemistry 5(11):949-955.	267
1485614	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.	269
1487082	Ten Hulscher, T. E. M., Vrind, B. A., Van den Heuvel, H., Van der Velde, L. E., Van Noort, P. C. M., Beurskens, J. E. M., Govers, H. A. J. (1998). Triphasic desorption of highly resistant chlorobenzenes, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons in field contaminated sediment. Environmental Science & Technology 33(1):126-132.	283
5113349	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).	285
5247211	Uchrin, C. G., Lewis, T. E. (1988). Modelling sorption and degradation of toxic and hazardous substances in ground water systems. Studies in Environmental Science 34(C):153-167.	288

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5471921	Van Zoest, R., Van Eck, G. T. M. (1991). Occurrence and behaviour of several groups of organic micropollutants in the Scheldt estuary. Science of the Total Environment 103(1):57-71.	290
1010287	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.	292
4933297	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.	297
1991522	Weber W J , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471-482.	302
Miscellaneous		
5475887	Gerstle, R., Carvatti, J. (1987). Sludge incineration and hazardous air pollutants. Sludge Management Series 17:169-174.	304
5490434	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.	306
666814	Kaiman, B., Kluwe, M., Zu Koefker, H. M., Lorber, K. E. (1992). Correlation between CO- and PIC-emissions. Chemosphere 25(7-10):1403-1407.	308
1009775	Kincannon, D. F., Stover, E. L., Nichols, V., Medley, D. (1983). Removal mechanisms for toxic priority pollutants. Journal of Water Pollution Control Federation 55(2):157-163.	310
1989859	Kuntz, K. W., Warry, N. D. (1983). Chlorinated organic contaminants in water and suspended sediments of the lower Niagara River. Journal of Great Lakes Research 9(2):241-248.	312
1269556	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).	314
4214180	Monsanto, (1987). Monsanto Pensacola plant ground water assessment feasibility study with 19 chemicals with attachments and cover letter dated 121887.	316
1265686	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.	318
2802028	Park, K. S., Sorensen, D. L., Sims, J. L., Adams, V. D. (1988). Volatilization of wastewater trace organics in slow rate land treatment systems. Hazardous Waste and Hazardous Materials 5(3):219-230.	320
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.	322
660424	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.	324
29959	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.	326
1990443	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429-438.	328
5468013	Stover, E. L., Fazel, A., Kincannon, D. F. (1985). Powdered activated carbon and ozone-assisted activated sludge treatment for removal of toxic organic compounds. Ozone: Science and Engineering 7(3):191-203.	334
5443237	Van Luin, A. B., Van Starkenburg, W. (1985). Hazardous Substances in Waste Water. Water Science and Technology 17(6-7):843-853.	336
5344622	Vandell, R. D., Mahle, N. H., Hixson, E. M. (1994). The effect of oxygen on the formation and destruction of the products of incomplete combustion from the combustion of polyethylene and o-dichlorobenzene. Combustion Science and Technology 101(1-6):261-283.	338
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.	340

o-Dichlorobenzene

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1991522	Weber W J, , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.	342
1003825	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. Chemosphere 53(5):583-591.	346
5250206	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.	348
1486980	Young, C. M., Voorhees, K. J. (1992). Thermal decomposition of 1,2-dichlorobenzene: Part I. Effect of operating conditions. Chemosphere 24(5):525-536.	354
5344596	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.	356
Other Properties		
List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables		362

Study Citation:	Dilling, W. L., Gonsior, S. J., Boggs, G. U., Mendoza, C. G. (1988). Organic photochemistry. 20. A method for estimating gas-phase rate constants for reactions of hydroxyl radicals with organic compounds from their relative rates of reaction with hydrogen peroxide under photolysis in 1,1,2-trichlorotrifluoroethane solution. Environmental Science & Technology 22(12):1447-1453.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	1482693

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-dichlorobenzene
Confidentiality, Type, Guideline	None; experimental; other: Estimating gas-phase rate constants.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; commercial sample Notes: ODCB
Duration and Test Temperature	not reported; 25.0±0.1 °C.
Light Source, Intensity, and additional light details	Hanovia 450-W medium-pressure mercury arc lamp.; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	Test were run in a solution of 1,1,2-trichlorotrifluoroethane; using H2O2 at 90% and 30%; 2 compartment reactor; Run done without H2O2 and dark controls with H2O2
Initial Concentration, Reference Compound	not reported; Not Reported
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate	reaction rate with OH radical; 4.12E-8/hour; 4.34E-8/hour
Constant Lower and Upper	
Method Details Results and Products	GC-FID; not reported
Details Results	
Parameter Value and Parameter Results	1.22E-4/hour; direct degradation rate constant
Reference Substance Results, Percent Degradation Results and Standard	Not Reported; not reported; ±0.79
Deviation Results	
Results Remarks, Sample time Results, Results Details	Comparative study where the estimation is probably good to 1 order of magnitude or better.; not reported; Experimentally, one needs to measure the relative rates of disappearance of the new compound and a standard compound, for which reaction rates are known, by photolyzing them in F-113 solution in the presence, and possibly in the absence, of H2O2.

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

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Study Citation:	Dilling, W. L., Gonsior, S. J., Boggs, G. U., Mendoza, C. G. (1988). Organic photochemistry. 20. A method for estimating gas-phase rate constants for reactions of hydroxyl radicals with organic compounds from their relative rates of reaction with hydrogen peroxide under photolysis in 1,1,2-trichlorotrifluoroethane solution. Environmental Science & Technology 22(12):1447-1453.			
OECD Harmonized Template:	Photolysis in Air			
HERO ID:	1482693			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	No significant sources of uncertainty were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.

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Study Citation:	Dilling, W. L., Gonsior, S. J., Boggs, G. U., Mendoza, C. G. (1988). Organic photochemistry. 20. A method for estimating gas-phase rate constants for reactions of hydroxyl radicals with organic compounds from their relative rates of reaction with hydrogen peroxide under photolysis in 1,1,2-trichlorotrifluoroethane solution. Environmental Science & Technology 22(12):1447-1453.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	1482693

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

Overall Quality Determination **High**

Study Citation:	Klamt, A. (1993). Estimation of gas-phase hydroxyl radical rate constants of organic compounds from molecular orbital calculations. Chemosphere 26(7):1273-1289.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	660158

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; Structural Estimation
Confidentiality, Type, Guideline	None; QSAR; other: Estimation of gas-phase hydroxyl radical rate constants using molecular orbital calculations
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: Estimation based on functional groups in chemical
Duration and Test Temperature	Not reported; Not reported
Light Source, Intensity, and additional light details	Not reported; Not reported; Not reported
Source Wavelength Lower and Upper	Not reported; Not reported
Test Details and Control	OH rate constants determined using quantitative relationships between MO-based descriptors for electronic properties of reaction sites and rate constants for OH-radical reaction mechanisms.; Not reported
Initial Concentration, Reference Compound	Not reported Not reported; Experimental data for comparison
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Hydroxyl radical rate constant; 0.48; Not reported
Method Details Results and Products Details Results	Rate constant for OH radical addition to aromatic rings (sp ² -carbon atoms); Not reported
Parameter Value and Parameter Results	Not reported; Rate constant units: 10E-12 cm ³ /molecule/s
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	0.42; Not reported; uncertainty factor = 1.4; r-squared = 0.97
Results Remarks, Sample time Results, Results Details	Not reported; Not reported; Not reported

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

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Study Citation:	Klamt, A. (1993). Estimation of gas-phase hydroxyl radical rate constants of organic compounds from molecular orbital calculations. Chemosphere 26(7):1273-1289.			
OECD Harmonized Template:	Photolysis in Air			
HERO ID:	660158			
		EVALUATION		
Domain	Metric	Rating	Comments	
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis reported and acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	High	The QSAR model had a defined, unambiguous endpoint and parameters of model performance were reported.
Overall Quality Determination			High	

Study Citation:	Kochany, J., Bolton, J. R. (1992). Mechanism of photodegradation of aqueous organic pollutants: 2. Measurement of the primary rate constants for reaction of hydroxy radicals with benzene and some halobenzenes using an EPR spin-trapping method following the photolysis of hydrogen peroxide. Environmental Science & Technology 26(2):262-265.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	660160

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Analysis of photodegradation using spin trapping with Electron Paramagnetic Resonance detection
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	Irradiation time: 1 minute; Not reported
Light Source, Intensity, and additional light details	UV lamp; Not reported; 150-W mercury-xenon lamp
Source Wavelength Lower and Upper	Not reported; Not reported
Test Details and Control	Hydroxyl radicals generated by H2O2 photolysis; a spin trap molecule, DMPO, reacts rapidly with radicals to produce spin adduct nitroxide radicals that can be detected by EPR.; Not reported
Initial Concentration, Reference Compound	5-50 micromolar; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Rate constant for reaction with OH radicals at pH 7.0; 4.0 (10E9/M·s); Not reported
Method Details Results and Products	Rate constant is the average calculated from both amplitude and slope measurements; Not reported
Details Results	
Parameter Value and Parameter Results	Not reported; Not reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not reported; Not reported; ±0.3
Results Remarks, Sample time Results, Results Details	Experimental variation using a Pyrex filter to block light radiation above 300 nm indicated that the rate of reaction of hydroxyl radicals is much greater than direct photolysis rates.; Not reported; Not reported

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

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Study Citation:	Kochany, J., Bolton, J. R. (1992). Mechanism of photodegradation of aqueous organic pollutants: 2. Measurement of the primary rate constants for reaction of hydroxy radicals with benzene and some halobenzenes using an EPR spin-trapping method following the photolysis of hydrogen peroxide. Environmental Science & Technology 26(2):262-265.			
OECD Harmonized Template:	Photolysis in Air			
HERO ID:	660160			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	Medium	The test substance stability and homogeneity were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Non standard method; however, the results were comparable to literature values.
	Metric 6:	Testing Conditions	Medium	Some details omitted; however, these factors were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	The test conditions were consistent.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some details omitted; however, these factors were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis reported and acceptable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Wahner, A., Zetzsch, C. (1981). Reactions of disubstituted benzenes with OH in the gas phase: Benzene, o-, m-, and p-dichlorobenzene, and p-chloroaniline. :138.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5253125

EXTRACTION				
Parameter		Data		
CASRN and Test Material		95-50-1; 12DCB		
Confidentiality, Type, Guideline		None; Experimental; other: Guideline not specified		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; NR; Gas; >99%		
Duration and Test Temperature		Not reported; 294±1 K		
Light Source, Intensity, and additional light details		Flash lamp with condenser and CaF2-window; Not reported; 100 flashes at 2 J, dwell times of 5 ms, 2ms, or 1ms		
Source Wavelength Lower and Upper		125 nm; Not reported		
Test Details and Control		OH radicals are generated by pulsed vacuum UV photolysis of water vapor at 0.02 - 0.09 Torr.; Not reported		
Initial Concentration, Reference Compound		50, 100, 200 Torr Ar; Not reported		
Substance Wavelength Lower and Upper		Not reported; Not reported		
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper		Not Reported; Not Reported; Not Reported		
Indirect Type Results, Indirect Rate Constant Lower and Upper		Reacting with OH radicals; Not Reported; 4.2±0.2 x 10^-13 cm^3/s		
Method Details Results and Products Details Results		First-order rate constant determined via semilogarithmic plot of resonance fluorescence intensity of OH vs time in the presence of the test substanceT^-1 = (T_0)^-1 + k[R]WhereT-1 = decay rate of OH(T_o)^-1 = caused by diffusion loses or OH radicals reacting with each other (= 2 - 12 /s)[R] = concentration of test substancek = rate constant; Not reported		
Parameter Value and Parameter Results		Not Reported; Not Reported		
Reference Substance Results, Percent Degradation Results and Standard Deviation Results		Not Reported; Not reported; Not Reported		
Results Remarks, Sample time Results, Results Details		Rate constants were independent of water vapor concentration and flash energy. This indicates constant stoichiometry of the reactions, and that photolysis products are not significantly involves in the kinetics of OH decay. Using the global tropospheric average [OH] = 4.10^5 /cm^3, the tropospheric residence time was determined to be 1 month; Not Reported; Not Reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance purity was verified.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A control was not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Storage and test substance preparation were not reported.

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Study Citation:	Wahner, A., Zetzsch, C. (1981). Reactions of disubstituted benzenes with OH in the gas phase: Benzene, o-, m-, and p-dichlorobenzene, and p-chloroaniline. :138.			
OECD Harmonized Template:	Photolysis in Air			
HERO ID:	5253125			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions were monitored and reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details on sampling methods were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variation between replicates and diffusive loss of OH were accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited information on analytical method were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described in detail and appropriate for the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: Cited in ECHA

Study Citation:	Schoeller, K., Horn, E. M. (1984). [Hydrolysis of ortho-dichlorobenzene-water-mixtures in neutral to acid conditions and its importance when selecting materials of construction]. Materials and Corrosion 35(9):401-406.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5345879

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	no; experimental; None
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Buffer, Test Temperature, Number of Replicates	NR; NR; NR
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	NR; NR
Sampling Frequency and Test Setup	NR; NR
Concentration	NR NR - NR NR NR
Analytical Method, Analytical Details, and Statistics	NR; NR; NR
Transformation Products	Hydrolysis products were monochlorobenzene and o-chlorophenol
Reference Substance and Reference Substance Results	NR; NR
Percent Recovery, Hydrolysis Rate Constant, and Half-life	NR; Results displayed graphically for hydrolysis at 100 deg C and 175 deg C for o-DCB alone, oDCB with iron powder, and o-DCB with 5% sulfuric acid; NR
Results Remarks	NR

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified
	Metric 2:	Test Substance Purity	Low	Unable to verify metric; study written in a foreign language.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Unable to verify metric; study written in a foreign language.
	Metric 4:	Test Substance Stability	Low	Unable to verify metric; study written in a foreign language.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	Low	Unable to verify metric; study written in a foreign language.
	Metric 6:	Testing Conditions	Low	Unable to verify metric; study written in a foreign language.
	Metric 7:	Testing Consistency	Low	Unable to verify metric; study written in a foreign language.
	Metric 8:	System Type and Design	Low	Unable to verify metric; study written in a foreign language.

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Study Citation:	Schoeller, K., Horn, E. M. (1984). [Hydrolysis of ortho-dichlorobenzene-water-mixtures in neutral to acid conditions and its importance when selecting materials of construction]. Materials and Corrosion 35(9):401-406.			
OECD Harmonized Template:	Hydrolysis			
HERO ID:	5345879			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Unable to verify metric; study written in a foreign language.
	Metric 12:	Test Substance Purity	Low	Unable to verify metric; study written in a foreign language.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Unable to verify metric; study written in a foreign language.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Unable to verify metric; study written in a foreign language.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Unable to verify metric; study written in a foreign language.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Unable to verify metric; study written in a foreign language.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.
Overall Quality Determination		Low		

* Related References: Study written in a foreign language

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	no; experimental; None: not specified
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Buffer, Test Temperature, Number of Replicates	Not Reported; Not Reported; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Not Reported
pH and Duration	11; Not Reported
Sampling Frequency and Test Setup	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Not Reported; Not Reported; Not Reported
Transformation Products	Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not Reported; Not Reported; 45.4 days
Results Remarks	Not Reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	Medium
Domain 2: Test Design	Metric 3:	Study Controls	Medium
	Metric 4:	Test Substance Stability	Medium

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Hydrolysis			
HERO ID:	5113349			
Domain		EVALUATION		Comments
		Metric	Rating	
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	More details expected to be available in the primary source, this metric does not apply.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5113349

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category.

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	no; experimental; None: not specified
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Buffer, Test Temperature, Number of Replicates	Not Reported; Not Reported; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Not Reported
pH and Duration	3; Not Reported
Sampling Frequency and Test Setup	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Not Reported; Not Reported; Not Reported
Transformation Products	Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not Reported; Not Reported; 35.5 days
Results Remarks	Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity was not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Hydrolysis			
HERO ID:	5113349			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination**Medium**

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category.

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	no; experimental; None: not specified
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Buffer, Test Temperature, Number of Replicates	Not Reported; Not Reported; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Not Reported
pH and Duration	5; Not Reported
Sampling Frequency and Test Setup	Not Reported; Not Reported
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Not Reported; Not Reported; Not Reported
Transformation Products	Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not Reported; Not Reported; 35.4 days
Results Remarks	Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity was not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Hydrolysis			
HERO ID:	5113349			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination**Medium**

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category.

Study Citation:	Klán, P., Del Favero, D., Ansorgová, A., Klánová, J., Holoubek, I. (2001). Photodegradation of halobenzenes in water ice. Environmental Science and Pollution Research 8(3):195-200.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	1942833

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): Photolysis products in water-ice solutions
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Lachema Co.; NR; NR Notes: purified by distillation under reduced pressure
Duration and Test Temperature	5 hours; -20°C
Light Source, Intensity, and additional light details	Mercury lamp; Not reported; Multiwavelength, 125W, medium pressure mercury lamp in a quartz vessel
Source Wavelength Lower and Upper	254 nm; 300 nm
Test Details and Control	Sealed quartz sample tubes; Not reported
Initial Concentration and Reference Compound	6E-4 Molar; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products	GC/MS using an internal standard method; reproducibility $\pm 15\%$; Coupling products: dichloro and trichloro-PCB congeners; dehalogenation products: chlorobenzene, benzene; photo solvolysis products:
Parameter Value and Parameter Results	Not Reported; Photoproduct concentration
Reference Compound, Reference	Not reported; Not reported; Not reported; $\pm 15\%$
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	Benzene: 0.010, phenol: ND, o, m, p-phenylphenol: ND, chlorobenzene: 0.726, o-dichlorobenzene: -, m-dichlorobenzene: 0.039, p-dichlorobenzene: 0.010, biphenyl: 0.030, o-chlorobiphenyl: 0.026, m-chlorobiphenyl: 0.225, p-chlorobiphenyl: 0.220, Dichlorobiphenyls: 0.910, trichlorobiphenyls: 1.610, tetrachlorobiphenyls: 0.172, dichloroterphenyls: 0.058, trichloroterphenyls: 0.155, tetrachloroterphenyls: 0.096; 5 hours; Product concentrations in melted aqueous solutions are reported in mg/L.

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance identified by chemical name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not included.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance.

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Study Citation:	Klán, P., Del Favero, D., Ansorgová, A., Klánová, J., Holoubek, I. (2001). Photodegradation of halobenzenes in water ice. Environmental Science and Pollution Research 8(3):195-200.			
OECD Harmonized Template:	Photolysis in Water			
HERO ID:	1942833			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	This metric met the criteria for medium confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
	Metric 12:	Test Substance Purity	Medium	Details were omitted; however, the lack of data is not likely to hinder the interpretation of the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Loss due to other process was not addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Recovery and mass balance not reported; study focused on byproduct formation; analytical detail was limited.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results may be limited due to lack of detail.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Kochany, J., Bolton, J. R. (1992). Mechanism of Photodegradation of Aqueous Organic Pollutants, 2: Measurement of the Primary Rate Constants for Reaction of OH Radicals with Benzene and Some Halobenzenes Using an EPR Spin-Trapping Method Following the Photolysis of H ₂ O ₂ . Environmental Science and Technology 26(2):262-265.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5254143

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): Non guideline photodegradation study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	180 seconds; Not reported
Light Source, Intensity, and additional light details	UV lamp; (150-W mercury-xenon lamp, Conrad Hanovia 901 B001; Not reported
Source Wavelength Lower and Upper	without Pyrex filter (<300 nm); with Pyrex filter (>300 nm)
Test Details and Control	Spin trap with 5,5'-dimethylpyrroline IV-oxide (DMPO), which reacts with free radicals, to form moderately stable nitroxides (spin adducts). The reaction of hydroxyl radicals were generated by H ₂ O ₂ photolysis.; Yes, no test substance and no light trials performed
Initial Concentration and Reference Compound	5-50 ?M; Not reported
Substance Wavelength Lower and Upper	natural light; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products	Not reported; Not reported
Details Results	
Parameter Value and Parameter Results	Not reported; Not reported
Reference Compound, Reference	Not reported; Not reported; Not reported; see remarks
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	Hydroxyl radical rate constant: 3.9±0.3x10 ⁹ at pH 3.5, 4.0±0.3x10 ⁹ at pH 7.0 and 3.3±0.3x10 ⁹ at pH 11.0 M-1·s-1; NR; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported; purity not reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Control details were reported.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				

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Study Citation:	Kochany, J., Bolton, J. R. (1992). Mechanism of Photodegradation of Aqueous Organic Pollutants, 2: Measurement of the Primary Rate Constants for Reaction of OH Radicals with Benzene and Some Halobenzenes Using an EPR Spin-Trapping Method Following the Photolysis of H2O2. Environmental Science and Technology 26(2):262-265.			
OECD Harmonized Template:	Photolysis in Water			
HERO ID:	5254143			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques were not discussed in detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	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 Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Davis, E. M., Murray, H. E., Liehr, J. G. (1981). Basic microbial degradation rates and chemical byproducts of selected organic compounds.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4140320

EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Warburg analysis and non-guideline aerobic biodegradation test			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Blank and Control	Not reported; Industrial control and municipal control included; toxicity screening performed (limited details)			
Oxygen and Inoculum	aerobic; other:: 2 tests: Industrial wastewater and activated sludge inoculums; Industrial wastewater treatment composed of Acinetobacter, Alcali- genes, Flavobacterium, and Pseudomonas and one yeast (Rhodotorula); municipal conventional activated sludge			
Duration, Parameter, System, and Sampling Frequency	data at 6h reported; test mat.: Warburg respirometer runs; GC-MS: Erlenmeyer flasks with aluminum caps; Not reported			
pH Adjusted and pH	Not Reported; Not reported			
Concentration	50 - 100 mg/L			
Composition and Test Temperature	Basic minimal culture media with glucose as sole carbon source Guthrie et al. (1965); 23°C (GC); 28°C (Warburg)			
CEC, Water Aeration Dilution, Continuous Dark- ness, and Other Design	Not reported; Not reported; Not reported; Rate of degradation or loss by volatilization were evaluated using extraction methods and GC analysis; inhibition or stimulation of respiration were evaluated via Warburg analysis			
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-MS; LOD and extraction recoveries not reported; Reduction test material (parent compound); Not Reported			
Results Value, Results Standard Deviation, Re- sults Sample Time, and Results Reference Sub- stance Compartments	2-4 mg/L of initial 50 mg/L remained after 7 days; Not reported; 7 days; Not specified			
Results Remarks and Results Details	Warburg analysis: Oxygen uptake at 100 mg/L after 180 min= 418 µL (411 µL in control) using an industrial seed inoculum and 64 µL (78 µL in control) using a municipal seed inoculum; No degradation products were identified by GC-MS; industrial seed demonstrated respiration stimulation at 200 mg/L; municipal seed demonstrated slight inhibition at 100 mg/L			
Results Mean Total Recovery and Results per Re- covery	Not reported; Not reported			

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

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Study Citation:	Davis, E. M., Murray, H. E., Liehr, J. G. (1981). Basic microbial degradation rates and chemical byproducts of selected organic compounds.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4140320			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The non-guideline test method was not described in detail.
	Metric 6:	Testing Conditions	Medium	There were some omissions in the reporting of test conditions. Light/dark conditions, and pH were not 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	Medium	The control of volatility was slow stirring; there may have been loss of test substance by volatility.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail regarding the outcome assessment methodology.
	Metric 12:	Test Substance Purity	Low	Sampling technique and timing was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups/controls were not considered or accounted for in data evaluation, resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	This metric met the criteria for low confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Minimal analytical detail, sampling and methodology limit the validity of the results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

* Related References: ECHA rating: 2

Study Citation:	Dermietzel, J., Vieth, A. (2002). Chloroaromatics in groundwater: chances of bioremediation. Environmental Geology 41(6):683-689.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4908945			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not reported; Biodegradation in groundwater microcosm			
Solvent, Reactivity, Storage, Stability	ethanol or absorbed on silica gel; NR; NR; NR			
Radiolabel, Source, State, Purity	organic carbon metabolism monitored by using radio-labelled carbon tracer, no other details provided; NR; NR; NR			
Blank and Control	Not reported; Not reported			
Oxygen and Inoculum	aerobic; natural water: Groundwater samples collected from one contaminated site, 0.3 mg/L DCBs detected in samples			
Duration, Parameter, System, and Sampling Frequency	25 days; other: Closed flasks, pressure monitored; 14, 25 d			
pH Adjusted and pH	Not Reported; Not reported			
Concentration	17.8 mg/L			
Composition and Test Temperature	Groundwater collected from Bitterfeld (Saxony-Anhalt), diluted 5x with deionized water; groundwater chloride composition 400 - 450 mg/L; 14, 20°C			
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; Biodegradation determined by Cl- release; No significant difference observed between temperatures, results reported as an average of 4 replicates (2 at each temperature)			
Results Details Method, Results per Degradation Parameter, and	GC (to detect CBs), IC (to determine chloride released); Test substance degradation (by Cl- release); Not Reported			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	5.8%; Not reported; 25 days; Not reported			
Results Remarks and Results Details	Incompletely degraded, chloride release stopped after 14 d. Cl- release: 0.5 mg/LCorresponding CB degradation: 1.04 mg/L; Not reported			
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance vehicle and applied concentrations were reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The method was suitable for the test substance.
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Study Citation:	Dermietzel, J., Vieth, A. (2002). Chloroaromatics in groundwater: chances of bioremediation. Environmental Geology 41(6):683-689.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4908945			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	No test conditions besides temperature were reported.
	Metric 7:	Testing Consistency	High	Tests were conducted consistently across samples and study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is used for similar study types.
	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 outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling addressed the outcomes of interest, little to no details on methods or sample frequency were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Standard deviations between replicates not reported, uncertainty or variation not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	No raw data reported. Limited analytical details provided, may be reported elsewhere (no percent recovery, limit of detection, limited analytical system details).
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods were utilized to determine significant difference in biodegradation at two temperatures but methods but not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are acceptable based on the method however limited study details were provided, and the results were not compared to findings from other studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Medium**

Study Citation:	Herrington, R. T., Hicks, J., Downey, D., Spain, J., Nishino, S., Becvar, E. (2000). Natural attenuation of chlorinated benzenes at a former disposal site. (3):175-184.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4908757

EXTRACTION	
Parameter	Data
CASRN and Test Material	not reported; 1,2-DCB
Confidentiality, EndPoint, Type, Guideline	No; other; experimental; other: non-guideline: reductive dechlorination in simulated aquifer microcosm
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; dichlorobenzenes and chlorobenzene contaminated ground water from a former military waste disposal site at Kelly Air Force Base (AFB), Texas; NR; NR Notes: NR
Blank and Control	not applicable; Not Reported
Oxygen and Inoculum	anaerobic; natural water / sediment: Groundwater (from 25 monitoring wells) at the AFB site was contaminated primarily with CB (ca. 45 mg/L and DCBs; 1,2-DCB up to 10000 µg/L in the anaerobic source area; also contained smaller fractions of fuel hydrocarbons; specific composition not reported.
Duration, Parameter, System, and Sampling Frequency	Not Reported; test mat.: column fed with 7.3 mg/L CB in filter-sterilized groundwater; not reported
pH Adjusted and pH	not reported; not reported
Concentration	< 10 - 10000 µg/L
Composition and Test Temperature	Groundwater samples from 25 monitoring wells around the former sump area.; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; Anaerobic, reducing conditions around the sump area and throughout most of the plume. DO concentrations were typically less than 0.5 mg/L and ranged from 0.1 to 7.0 mg/L. Previously described methods (Buscheck and Alcantar method and Moutoux method) were used to estimate first-order, field-biodegradation rate constants for chlorinated benzenes .
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; not reported; not reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; not reported; not reported
Results Remarks and Results Details	Rapid disappearance of DCB downgradient from source area and increased concentrations of CB was observed; data indicates DCB is reductively dehalogenated to CB; CB is removed from groundwater by aerobic biodegradation. Reductive dechlorination decay rates calculated for DCB in and immediately downgradient of the source are using the Buscheck and Alcantar and Mountoux methods were 6.7E-2 day-1 and 4.6E-3 day-1, respectively.; Results for transformation product: total destructive attenuation rates estimated for CB downgradient from the source area ranged from 7.9E-4 to 2.2E-3 day-1; total destructive attenuation rates for CB in the source area ranged from 1.4E-2 to 1.9E-2 day-1; reductive dechlorination decay rates computed for DCB in and immediately downgradient from the source area = 4.6E-3 day-1 (Buscheck and Alcantar method) and 6.7E-2 day-1.
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance			

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Study Citation:	Herrington, R. T., Hicks, J., Downey, D., Spain, J., Nishino, S., Becvar, E. (2000). Natural attenuation of chlorinated benzenes at a former disposal site. (3):175-184.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4908757			
Domain		Metric	EVALUATION Rating	Comments
	Metric 1:	Test Substance Identity	Medium	The test substance was identified; however, the majority of the data relates to all DCB isomers and is not specific to 1,2-DCB.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type; no indication of analytical standards.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Target chemical concentrations were not fully reported.
	Metric 6:	Testing Conditions	Medium	Limited detail regarding this metric.
	Metric 7:	Testing Consistency	Uninformative	Variable concentrations and multiple isomers present without quantification.
	Metric 8:	System Type and Design	Low	Limited detail regarding this metric.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Inoculum source reported; previously contaminated.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There was incomplete reporting of outcome assessment methods; qualitative results reported for target chemical. Degradation rates reported for transformation product however source was not strictly target chemical.
	Metric 12:	Test Substance Purity	Low	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Limited detail regarding this metric.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Insufficient evidence presented; no analytical details reported; rates determined based on cited work.
	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	Uninformative	Reliable, quantitative results were not reported for the intended outcome of interest.
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Study Citation:	Herrington, R. T., Hicks, J., Downey, D., Spain, J., Nishino, S., Becvar, E. (2000). Natural attenuation of chlorinated benzenes at a former disposal site. (3):175-184.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4908757

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

Overall Quality Determination **Uninformative**

Study Citation:	Kondo, M., Nishihara, T., Shimamoto, T., Koshikawa, T., Itio, T., Sawamura, R., Tanaka, K. (1988). [Biodegradation test of chemicals by cultivation methods]. Eisei Kagaku / Journal of Hygienic Chemistry 34(2):188-195.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1333626

EXTRACTION	
Parameter	Data
CASRN and Test Material	not reported; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; screening test; experimental; other: cultivation method in river and seawater
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	not specified (likely aerobic); natural water: River water from Mino River; sea water from Akashi Beach
Duration, Parameter, System, and Sampling Frequency	3 days; Not Reported; Not Reported; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	20 - ppm
Composition and Test Temperature	Not Reported; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and	Not Reported; not specified; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	30-50% (river water) 15-30% (sea water); not reported; 3 days; not specified; however, 170 chemicals evaluated including aniline
Results Remarks and Results Details	judgement of degradability: moderate; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	Unclear due to foreign language.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Unclear due to foreign language.
	Metric 4:	Test Substance Stability	Medium	Unclear due to foreign language.
Domain 3: Test Conditions				

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Study Citation:	Kondo, M., Nishihara, T., Shimamoto, T., Koshikawa, T., Itio, T., Sawamura, R., Tanaka, K. (1988). [Biodegradation test of chemicals by cultivation methods]. Eisei Kagaku / Journal of Hygienic Chemistry 34(2):188-195.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	1333626			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	Target chemical concentration appropriate.
	Metric 6:	Testing Conditions	Medium	Unclear due to foreign language.
	Metric 7:	Testing Consistency	Medium	Unclear due to foreign language.
	Metric 8:	System Type and Design	Medium	Unclear due to foreign language.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Unclear due to foreign language.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Unclear due to foreign language.
	Metric 12:	Test Substance Purity	Medium	Unclear due to foreign language.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Unclear due to foreign language.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Unclear due to foreign language.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Unclear due to foreign language.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study.
Overall Quality Determination			Medium	

Study Citation:	Macintyre, W. G., Boggs, M., Antworth, C. P., Stauffer, T. B. (1993). Degradation kinetics of aromatic organic solutes introduced into a heterogeneous aquifer. Water Resources Research 29(12):4045-4051.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5254832

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; o-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	none; other; experimental; other: Non-guideline: pulse injection experiment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	not reported; not reported
Oxygen and Inoculum	aerobic; other:: indigenous microbes
Duration, Parameter, System, and Sampling Frequency	ca. 500 days; test mat.: Pulse injection wells located at an aquifer in Columbus Air Force Base, Columbus, Mississippi; not specified
pH Adjusted and pH	not reported; not reported
Concentration	= 32.8 mg/L
Composition and Test Temperature	heterogeneous, unconfined aquifer; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; pulse injection of 3H2O solution of organic solutes (solution contained: tritium, benzene, naphthalene, p-xylene, ring labeled p-xylene, o-dichlorobenzene); DO 2.6-3.8 mg/L
Results Details Method, Results per Degradation Parameter, and	GC with FID (internal standards: deuterated toluene and 4-bromofluorobenzene); sensitivity: 4 µg/L; Disappearance of test material; not reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; not reported; labeled p-xylene
Results Remarks and Results Details	Biodegradation was indicated but not strictly confirmed; loss of solute from near to far field was assumed based on evaluation of tritium transport, with solute leakage occurring at a rate of 5.45E-3/day.; First order rate constant k (based on whole field data): 0.0046/day; kmax: 0.010/day (occurred 224-328 days after injection); First order rate constant k (based on near field data): 0.0060/day; kmax: 0.0059/day (corrected for leakage)
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	Low
			The test substance was identified clearly.
			The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Low
			Concurrent control groups were not included.

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Study Citation:	Macintyre, W. G., Boggs, M., Antworth, C. P., Stauffer, T. B. (1993). Degradation kinetics of aromatic organic solutes introduced into a heterogeneous aquifer. Water Resources Research 29(12):4045-4051.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5254832			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported; test substance added as a solution with several other test substances.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Test method is not a standard method for evaluating biodegradation.
	Metric 6:	Testing Conditions	Low	Limited detail regarding test conditions/site characteristics.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	Low	Equilibrium was not established or reported for the system type and design.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Microbial viability was not fully validated with a positive control; results from p-xylene suggest microbial degradation.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Degradation rate reported; however, could not be fully attributed to microbial degradation.
	Metric 12:	Test Substance Purity	Low	Limited detail regarding sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study group were not explicitly considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The target chemical concentration data were not fully reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**Low**

Study Citation:	Monsanto Industrial Chem Co, (1976). Biodegradability of process and related chemicals.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4929993			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	not reported; o-dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	Details are crossed out; Ultimate and primary biodegradation; experimental; other: Thompson-Duthie-Sturm Procedure and modified SCAS test methods are cited			
Solvent, Reactivity, Storage, Stability	SCAS ethanol; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; SCAS ethanol solution; NR Notes: NR			
Blank and Control	Controls included; not reported			
Oxygen and Inoculum	aerobic; Not Reported: Mixed liquor of activated sludge and supernatant (SCAS); acclimated bacterial seed (Thompson-Duthie-Sturm and Monsanto Shake Flask)			
Duration, Parameter, System, and Sampling Frequency	Ultimate 28-35 days; SCAS 23-167 hours; CO2 evolution: Erlenmeyer flasks; test bottles; not reported			
pH Adjusted and pH	not reported; not reported			
Concentration	>= 15 - <= 120 mg			
Composition and Test Temperature	not specified; not reported			
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; not reported			
Results Details Method, Results per Degradation Parameter, and	Flame ionization GC; CO2 evolution; not reported			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; not reported; not reported			
Results Remarks and Results Details	All results for this chemical were redacted.; not reported			
Results Mean Total Recovery and Results per Recovery	not reported; not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were omitted.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls included.
	Metric 4:	Test Substance Stability	Medium	Detail regarding this metric were omitted.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance
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Study Citation:	Monsanto Industrial Chem Co, (1976). Biodegradability of process and related chemicals.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4929993			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Test conditions were reported
	Metric 7:	Testing Consistency	High	Testing was consistent across study groups.
	Metric 8:	System Type and Design	High	Appropriate methods were used.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum reported are routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Detail regarding this metric were omitted for target chemical.
	Metric 12:	Test Substance Purity	High	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Uninformative	Detail regarding this metric were omitted for target chemical.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Detail regarding this metric were omitted for target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	Detail regarding this metric were omitted for target chemical.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Detail regarding this metric were omitted for target chemical.
	Metric 18:	QSAR Models	N/A	Not applicable to the study.

Overall Quality Determination

Uninformative

Study Citation:	Naziruddin, M., Grady, C. P. L., Jr, Tabak, H. H. (1995). Determination of biodegradation kinetics of volatile organic compounds through the use of respirometry. Water Environment Research 67(2):151-158.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4931835

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: enriched degradation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-DCB
Blank and Control	not reported; toxicity study included
Oxygen and Inoculum	aerobic; activated sludge, adapted: The acclimated bacteria were enriched in batch reactors with at least four transfers in batch culture to ensure that at least 99% of the bacteria were capable of biodegradation of 1,2-DCB.
Duration, Parameter, System, and Sampling Frequency	not reported; O ₂ consumption: Continuous stirred tank reactors; not reported
pH Adjusted and pH	no; not reported
Concentration	27.5 mg/L
Composition and Test Temperature	nutrient solution at twice the concentration recommended by OECD (1981).; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; yes; Not Reported
Results Details Method, Results per Degradation Parameter, and	electrolytic respirometry; O ₂ consumption; not reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; not reported; kinetic parameters compared to other studies.
Results Remarks and Results Details	microbial growth rate=0.054±0.004/hr; inhibition coefficient=1.99±1.56 mg/L as COD; decay coefficient=0.009±0.006/hr; biomass yield=0.40±0.01; product yield=0.05±0.00; residual sum of squares error=6.4±1.6; 15 day lag phase
Results Mean Total Recovery and Results per Recovery	not reported; not reported

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

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Study Citation:	Naziruddin, M., Grady, C. P. L., Jr, Tabak, H. H. (1995). Determination of biodegradation kinetics of volatile organic compounds through the use of respirometry. Water Environment Research 67(2):151-158.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	4931835			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations; however, these deviations or omissions were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	An inoculum that was pre-adapted to the test substance was used for a biodegradation rate study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables were identified and discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
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Study Citation:	Naziruddin, M., Grady, C. P. L., Jr, Tabak, H. H. (1995). Determination of biodegradation kinetics of volatile organic compounds through the use of respirometry. Water Environment Research 67(2):151-158.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	4931835

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

Overall Quality Determination	Medium

Study Citation:	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. Environmental Science & Technology 30(1):31-37.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	1486742

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; analytical grade
Blank and Control	biologically deactivated control; Not reported
Oxygen and Inoculum	Not Reported; natural water: freshwater: microorganisms from the ground water
Duration, Parameter, System, and Sampling Frequency	3 months; test mat.: In Situ Microcosms; 7 days
pH Adjusted and pH	Not Reported; Not reported
Concentration	ca. 150 - µg/L
Composition and Test Temperature	Cylinder open at bottom, screened at top. Installed in the aquifer through a borehole approx. 5 m below ground surface.; Not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Yes; Not reported; Not Reported
Results Details Method, Results per Degradation Parameter, and	Carlo Erba gas chromatograph equipped with FID and ECD; Not reported; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	Not reported; Not reported; Not reported; Not reported
Results Remarks and Results Details	lag phase 13 days; first-order degradation constant: k=0.06/day
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported; all organics were analytical grade.
Domain 2: Test Design	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	N/A	Not applicable; this study was an in situ experiment.
Domain 3: Test Conditions				

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Study Citation:	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. Environmental Science & Technology 30(1):31-37.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	1486742			
Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	Low	Some testing conditions were not reported (such as temperature of the microcosm and pH); however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	Medium	Some system details were omitted but these omissions were unlikely to have impacted the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	LOD was not specified, but this omission should not have affected the results.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

* Related References: HSDB

Study Citation:	Stauffer, T. B., Antworth, T. B., Boggs, J. M., Macintyre, W. G. (1994). A natural gradient tracer experiment in a heterogeneous aquifer with measured in situ biodegradation rates: a case for natural attenuation. :73-84.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5185291			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; o-dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: In situ biodegradation in an aquifer			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	None; NR; NR; NR			
Blank and Control	not applicable; not applicable			
Oxygen and Inoculum	not specified; natural water: in situ; heterogeneous unconfined aquifer at Columbus Air Force Base.			
Duration, Parameter, System, and Sampling Frequency	not reported; test mat.: not applicable; 27, 132, 224, 328, 440 days after injection.			
pH Adjusted and pH	no; not reported			
Concentration	32.8 mg/L			
Composition and Test Temperature	not applicable; not reported			
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not applicable; yes; injection volume, 9,600 L; injection time, 47.5 hr; injection wells screened over a 0.6-m interval at 4 m below the phreatic surface in the saturated zone of the aquifer; and five injection wells in a line normal to the hydraulic gradient and spaced at 1-m intervals with equal flow to each well.			
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC-FID; test mat.; not applicable			
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	not reported; not reported; 421 days; Not Reported			
Results Remarks and Results Details	o-dichlorobenzene had a maximum degradation rate of 0.0114/d; the rate corrected for solute leakage is 0.0059/d; maximum rate of the entire well field is 0.0100/day; Not Reported			
Results Mean Total Recovery and Results per Recovery	not reported; not applicable			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test 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	N/A	The study did not require concurrent control groups.
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Study Citation:		Stauffer, T. B., Antworth, T. B., Boggs, J. M., Macintyre, W. G. (1994). A natural gradient tracer experiment in a heterogeneous aquifer with measured in situ biodegradation rates: a case for natural attenuation. :73-84.		
OECD Harmonized Template:		Biodegradation in Water		
HERO ID:		5185291		
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method was only suitable for this aquifer.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability were not discussed and uncertainty was not reported in the measurements which may have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
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Study Citation:	Stauffer, T. B., Antworth, T. B., Boggs, J. M., Macintyre, W. G. (1994). A natural gradient tracer experiment in a heterogeneous aquifer with measured in situ biodegradation rates: a case for natural attenuation. :73-84.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5185291			
		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		NEED TO FIX		

Study Citation:	Tabak, H. H., Chambers, C. W., Kabler, P. W. (1964). MICROBIAL METABOLISM OF AROMATIC COMPOUNDS. I. DECOMPOSITION OF PHE-NOLIC COMPOUNDS AND AROMATIC HYDROCARBONS BY PHENOL-ADAPTED BACTERIA. Journal of Bacteriology 87:910-919.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3089997

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Eastman; NR; Grade (highest purity chemicals suitable for reagent use) or Practical Grade (suitable for most laboratory syntheses)
Blank and Control	uninoculated; not reported
Oxygen and Inoculum	aerobic; other:: Organisms were obtained from garden soil, compost, river mud, and sediment from a waste lagoon of a petroleum refinery catalytic cracking plant.
Duration, Parameter, System, and Sampling Frequency	not reported; test mat.: Warburg baffled Erlenmeyer flasks on an orbital shaker.; not reported
pH Adjusted and pH	Not Reported; 7.0-7.2
Concentration	Not Reported
Composition and Test Temperature	mineral salts medium with vitamin B12; 30°C
CEC, Water Aeration Dilution, Continuous Dark-ness, and Other Design	not reported; not reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and	not reported; not reported; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Re-sults Sample Time, and Results Reference Sub-stance Compartments	not reported; not reported; not reported; Not Reported
Results Remarks and Results Details	resistant to degradation; not reported
Results Mean Total Recovery and Results per Re-covery	not reported; not reported

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

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Study Citation:	Tabak, H. H., Chambers, C. W., Kabler, P. W. (1964). MICROBIAL METABOLISM OF AROMATIC COMPOUNDS. I. DECOMPOSITION OF PHE-NOLIC COMPOUNDS AND AROMATIC HYDROCARBONS BY PHENOL-ADAPTED BACTERIA. Journal of Bacteriology 87:910-919.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	3089997			
		EVALUATION		
Domain	Metric	Rating	Comments	
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum sources were reported, but it was unclear which specific type was used; however, the deviation was not likely to have a substantial impact on study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome were not fully reported; however, the omissions were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The target chemical and transformation product concentrations, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Tabak, H. H., Chambers, C. W., Kabler, P. W. (1964). MICROBIAL METABOLISM OF AROMATIC COMPOUNDS. I. DECOMPOSITION OF PHE-NOLIC COMPOUNDS AND AROMATIC HYDROCARBONS BY PHENOL-ADAPTED BACTERIA. Journal of Bacteriology 87:910-919.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	3089997

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

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

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other: Biodegradation in domestic wastewater, static-culture flask-screening
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	Synthetic medium containing 5mg yeast extract; Not reported
Oxygen and Inoculum	aerobic; sewage, domestic, non-adapted: Weekly "subcultures" involved adding fresh test samples to existing cultures to test for inoculum adaptation.
Duration, Parameter, System, and Sampling Frequency	28 days (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 Temperature	BOD dilution water with 5 mg/L yeast extract; 25°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; yes; Homogenous suspensions of the test substance in the chilled synthetic medium were prepared in a heavy duty blender for 2 minutes. Replicate studies with 5 mg/L and 10 mg/L substrate.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	GC and TOC determinations. GC LOD: 0.1 mg/L; Average loss of test substance after 7 days; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	29-66% (at 5 mg/L); 18-59% (at 10 mg/L); Not reported; 7 days; Not reported
Results Remarks and Results Details	Significant degradation with gradual adaptation followed by toxicity in subcultures; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	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.

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Study Citation:	Tabak, H. H., Quave, S. A., Mashni, C. I., Barth, E. F. (1981). Biodegradability studies with organic priority pollutant compounds. Journal of Water Pollution Control Federation 53(10):1503-1518.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	9861			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test substance was tested above its aqueous solubility which may have had an impact on the study results.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The inoculum type was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of uncertainty were not reported which may impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate, percentage removal of the test substance was reported, and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	no; ready biodegradability; experimental; OECD Guideline 301 C (Ready Biodegradability: Modified MITI Test (I)): MITI test
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Blank and Control	Not Reported; Not Reported
Oxygen and Inoculum	Not Reported; Not Reported
Duration, Parameter, System, and Sampling Frequency	28 days; Not Reported; Not Reported; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	Not Reported
Composition and Test Temperature	Not Reported; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and	Not Reported; Not Reported; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0%; Not Reported; 28 days; Not Reported
Results Remarks and Results Details	Not Reported; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5113349			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was low or not reported (e.g., lack of information on hydration state of a compound introduces uncertainty into concentration calculations); 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	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were not reported but expected to be appropriate. More details expected in the primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5113349			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination

Medium

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category data also available on National Institute of Technology and Evaluation.

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	no; ready biodegradability; experimental; OECD Guideline 301 D (Ready Biodegradability: Closed Bottle Test): OECD 301 D: Closed Bottle Test
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Blank and Control	Not Reported; Not Reported
Oxygen and Inoculum	Not Reported; Not Reported: acclimated cultures
Duration, Parameter, System, and Sampling Frequency	20 days; Not Reported: Not Reported; Not Reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	Not Reported
Composition and Test Temperature	Not Reported; Not Reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not Reported; Not Reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and	Not Reported; Not Reported; Not Reported
Direct Quantum Yield Results	
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	58%; Not Reported; 20 days; Not Reported
Results Remarks and Results Details	Not Reported; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was low or not reported (e.g., lack of information on hydration state of a compound introduces uncertainty into concentration calculations); however, the omissions or identified impurities were not likely to have a substantial impact on the study results.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5113349			
Domain		EVALUATION		Comments
		Metric	Rating	
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were not reported but expected to be appropriate. More details expected in the primary source.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5113349

		EVALUATION		
Domain	Metric	Rating		Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination

Medium

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category

Study Citation:	Union Carbide, (1974). Environmental impact analysis product biodegradability testing.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	1335265			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; other			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Union Carbide Corporation; NR; NR			
Blank and Control	Not reported; Not reported			
Oxygen and Inoculum	aerobic; other:: Unacclimated microorganisms in water.			
Duration, Parameter, System, and Sampling Frequency	20 days; ThOD: BOD test bottle with direct syringe injection of o-DCB.; Days 5, 10, 15, 20			
pH Adjusted and pH	Not Reported; Not reported			
Concentration	Not Reported			
Composition and Test Temperature	Not reported; Not reported			
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Dilution water was initially sparged with pure oxygen to 16-20 mg/L.; Not Reported; Not Reported			
Results Details Method, Results per Degradation Parameter, and	BOD/ThOD; Biochemical Oxygen Demand/Theoretical Oxygen Demand x 100; Not Reported			
Direct Quantum Yield Results				
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	5% after 20 days in unacclimated microorganisms; Not reported; Not reported; Not Reported			
Results Remarks and Results Details	Not Reported; Not Reported			
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.	
Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission is unlikely to have a substantial impact on the study results.	
Domain 2: Test Design				
Metric 3:	Study Controls	Medium	No controls were reported in the study but the omission is unlikely to have a substantial impact on the study results.	
Metric 4:	Test Substance Stability	High	Some details regarding the test substance preparation and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.	
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Study Citation:	Union Carbide, (1974). Environmental impact analysis product biodegradability testing.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	1335265			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Some testing conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	The number of replicates was not reported so testing consistency could not be evaluated.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some details regarding the inoculum were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Some details regarding the sampling method were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability were not discussed and uncertainty was not reported in the measurements which may have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Some details regarding the analytical method were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported and sufficient data was not provided for an independent analysis.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		Medium		

Study Citation:	Wilson, J. T., Smith, G. B., Cochran, J. W., Barker, J. F., Roberts, P. V. (1987). Field evaluation of a simple microcosm simulating the behaviour of volatile organic compounds in subsurface materials. Water Resources Research 23(8):1547-1553.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5257747

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Guideline not specified; aquifer microcosm biodegradation and comparison to field site
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Blank and Control	Autoclaved microcosm; Not reported
Oxygen and Inoculum	not specified; natural water / sediment: Unconfined aquifer in glacio-fluvial sands collected 1.5 - 3.4 m subsurface, Canadian Forces Base, Borden, Canada
Duration, Parameter, System, and Sampling Frequency	52 weeks; test mat.: 35-mL screw-cap test tubes sealed with Teflon-faced screw cap, wrapped in parafilm, mixed via vortex mixer; 0, 6, 11, 18, 28, and 52 wk
pH Adjusted and pH	Not Reported; Not reported
Concentration	163 µg/L
Composition and Test Temperature	Water porosity 0.46; Water: 0.75 - 1.03 mg/L TOC, 0.4 - 7.1 mg/L oxygen; 10°C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not applicable; yes; Test solution applied as a mixture of 20mg bromoform, carbon tetrachloride, tetrachloroethylene, hexachloroethane, and the test substance
Results Details Method, Results per Degradation Parameter, and	Pore water samples injected into sparging vessel of Tekmar purge-and-trap unit and analyzed according to USEPA method 624. Volatiles trapped on Tenax-GC/silica gel trap (2:1) and chromatographed on 80/100 Carboxen 100 column. Analysis: GC/MS system interfaced to an INCOS 2300 data system. Precision:±10%; Detection limits: 0.1 - 1.0 µg/L; % Test substance remaining; Not Reported
Direct Quantum Yield Results	30%; Not reported; 50 week; NR; 30% remaining first 9 wk, dropped to 10% and lower at 12 wk, likely due to microbial adaptation
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	
Results Remarks and Results Details	1.5 - 2.1 m depth aquifer sands: 45%/0wk, 45%/6wk, 45%/11wk, 38%/18wk, 40%/28wk, 30%/50wk (% test substance remaining) 2.1 - 2.7 m depth aquifer sands: 80%/0wk, 22%/6wk, 25%/11wk, 20%/18wk, 30%/28wk, 30%/50wk (% test substance remaining) 2.7 - 3.4 m depth aquifer sands: 70%/0wk, 22%/6wk, 22%/11wk, 22%/18wk, 25%/28wk, 25%/50wk (% test substance remaining); Not reported
Results Mean Total Recovery and Results per Recovery	Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	High	The test substance was identified by name.
	Metric 2:	Medium	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	High	An autoclaved microcosm was included as a concurrent control.
	Metric 4:	High	The test substance preparation was reported and appropriate for the study.

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Study Citation:	Wilson, J. T., Smith, G. B., Cochran, J. W., Barker, J. F., Roberts, P. V. (1987). Field evaluation of a simple microcosm simulating the behaviour of volatile organic compounds in subsurface materials. Water Resources Research 23(8):1547-1553.			
OECD Harmonized Template:	Biodegradation in Water			
HERO ID:	5257747			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Anaerobic/aerobic conditions were not explicitly reported, no sediment parameters reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	N/A	Not applicable
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Test inoculum source was reported and is routinely used for similar study types.
	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 outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty in measurements and between groups was accounted for in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Target chemical concentrations were reported and analytical methods were sensitive enough to defend the chemical, however sorption was not assessed as a removal process and it's unknown how much this contributed to removal instead of biodegradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results cannot distinguish biodegradation from sorption.
	Metric 18:	QSAR Models	N/A	Not applicable

Overall Quality Determination**High**

* Related References: Cited in ECHA

Study Citation:	Clover, C. C., Jackson, W., Pardue, J. H. (1998). Natural attenuation of mono- and dichlorobenzenes in anaerobic surface sediments at the petro processors site. :75.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5252376

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; Not Reported
Confidentiality, EndPoint, Type, Guideline	No; Not Reported; Experimental; other: Non-guideline
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	Not reported; Not reported; Not reported; Not reported
Oxygen and Inoculum	Anaerobic; natural sediment: freshwater: Sediment was obtained from a dichlorobenzene contaminated stream bed at Petro Processors (PPI) Superfund site.
Duration, Parameter, System, and Sampling Frequency	5 weeks; Test material; 125mL incubation bottles with 100g slurry containing sediment, deaerated pore water from the site, and DCB.; Approximately every 4 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank Concentration	Not reported; Not reported; Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	>= 10mg/kg sediment - GC-MS; GC-MS using selected ion monitoring; Test material concentration
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	13.9 days; Not reported; Not reported; Not reported
Results Details	First order reaction rate: 0.050 days ⁻¹
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Approximately 85% disappearance after 5 weeks.; Not reported; Methane production measured with GC-FID peaked at approximately the same time DCB concentrations decreased (around day 20).

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was not reported; however, it was detected using appropriate analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Controls were not reported; however, the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Clover, C. C., Jackson, W., Pardue, J. H. (1998). Natural attenuation of mono- and dichlorobenzenes in anaerobic surface sediments at the petro processors site. :75.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	5252376			
Domain	Metric	EVALUATION		Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Some of the testing conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	Medium	Some testing conditions were not reported across the study groups; however, this unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Some details regarding the inoculum type were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty in the measurements were not reported; however, the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical method details, such as extraction efficiency, were not reported which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and appropriate.
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.

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Study Citation:	Clover, C. C., Jackson, W., Pardue, J. H. (1998). Natural attenuation of mono- and dichlorobenzenes in anaerobic surface sediments at the petro processors site. :75.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5252376

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

Study Citation:	Jackson, W., Pardue, J. H. (1999). Natural attenuation case study for chlorobenzenes in a forested wetland. n/a:9.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5276512

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	anaerobic; natural water / sediment: Devil's Swamp floodplain sediments: collected from industrial waste disposal facility site near Baton Rouge, Louisiana
Duration, Parameter, System, and Sampling Frequency	5 wk; test mat.; 100 g slurry added to 30 x 125 mL incubation bottles in anerobic glove box; Every 3-4 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	5 wk; Not reported; Not Reported; Not Reported; Not reported; Not reported
Control Dark, Control, and Blank Concentration	Not Reported; Not reported; Not reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	10 mg/kg
Results Remarks	GC-MS (test substance concentration); GC-FID (methane production); GC-MS using selected ion monitoring; 7
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Completely degraded within 5 weeks. Degradation occurred under methanogenic conditions. DCBs were at least partially dechlorinated to MCB before ring cleavage but complete mass balance was not achieved. Ca.50% of DCBs were converted to MCB.
Results Details	Not reported; Not reported; Not reported; Not reported
Mean Total Recovery Results and Results Per Recovery	First order rate constant: 0.050 / d ($R^2=0.68$)
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not reported
	ca. 100%; Not Reported; Monochlorobenzene

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	Medium
			The test substance was identified by name.
			The source and purity of the test substance was not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium
	Metric 4:	Test Substance Stability	Medium
			A concurrent control was not reported.
			Minimal details on test substance preparation or sample storage conditions were reported.

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Study Citation:		Jackson, W., Pardue, J. H. (1999). Natural attenuation case study for chlorobenzenes in a forested wetland. n/a:9.		
OECD Harmonized Template:		Biodegradation in Sediment		
HERO ID:		5276512		
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Temperature, pH, other sediment parameters were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum source was reported and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods addressed the outcomes of interest and are widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between samples was addressed by statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Target chemical concentrations and a transformation product was reported, mass balance and extraction efficiency were not reported, it is not clear if sorption was differentiated from biodegradation in test substance loss.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical and kinetic calculations were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Kirk, P. W. W., Rogers, H. R., Lester, J. N. (1989). Fate of chlorobenzenes and permethrins during anaerobic sewage sludge digestion. Chemosphere 18(9):1771-1784.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	2298564

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Anaerobic biodegradation of 1,2-dichlorobenzene in digested sludge.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Co. (Gillingham, UK); NR; NR
Oxygen and Inoculum	anaerobic; digested sludge: Sludge was collected from Hogsmill Valley WPCW (Thames Water Authority, UK). 2.8% total solids.
Duration, Parameter, System, and Sampling Frequency	32 days; test mat.; Closed system with oxygen free nitrogen headspace.; Not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Samples received 50mg/L sodium acetate and 25mg/L sodium propionate.; Not reported; Not reported; Not reported
Control Dark, Control, and Blank Concentration	Not Reported; Azide treated controls were used to determine abiotic losses.; Not reported 710 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Gas chromatography-electron capture detection.; Perkin Elmer 8420 capillary gas chromatograph (Beaconsfield, UK).; 7
Results Remarks	Paired t-test between untreated and azide treated samples showed no significant difference; therefore it appears that biodegradation was not responsible for the removal.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	<4 days; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; 54±17%
Results Value, Direct Quantum Yield Results, and Transformation Products	Approximately 66% removal was observed in the treated and untreated experiments.; Not Reported; Not Reported

EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission is unlikely to have an impact on the study results.
Domain 2: Test Design	Metric 3:	Study Controls	High	Appropriate controls were used.
	Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity were reported and appropriate.

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Study Citation:	Kirk, P. W. W., Rogers, H. R., Lester, J. N. (1989). Fate of chlorobenzenes and permethrins during anaerobic sewage sludge digestion. Chemosphere 18(9):1771-1784.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	2298564			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable and the test substance was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported deviations in the testing conditions across the sample groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Some of the details regarding the inoculum were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in the recoveries 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 Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable and recoveries were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

* Related References: Cited in ECHA

Study Citation:	Kuhn, E. P., Colberg, P. J., Schnoor, J. L., Wanner, O., Zehnder A, J. B., Schwarzenbach, R. P. (1985). Microbial transformations of substituted benzenes during infiltration of river water to groundwater laboratory column studies. Environmental Science & Technology 19(10):961-968.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	4931552			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-DCB			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Not reported; biodegradation in column studies			
Solvent, Reactivity, Storage, Stability	Double distilled water; NR; 4°C in a flask; Stored up to 2 months without significant losses			
Radiolabel, Source, State, Purity	NA; Fluka, Buchs, Switzerland; Liquid; 99%			
Oxygen and Inoculum	aerobic/anaerobic; natural sediment: 2% clay, 2 - 5 mg/g organic carbon			
Duration, Parameter, System, and Sampling Frequency	9 mo (aerobic), 3 mo (anaerobic); test mat.; Borosilicate glass column with sampling ports at 1.5, 4.7, and 9.1 cm from inlet (column 1), Plexiglas column with sampling port at 2.7 cm from inlet, with 19 additional ports placed at 5 cm intervals (column 2); Approx. 9 mo (aerobic), 1, 3, 4 d (anaerobic)			
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Approx. 9 mo (aerobic), 3 mo. (anerobic); Influent, port, and effluent; Aquifer material from interface of river/groundwater infiltration site; Synthetic river water with added nutrients (0.68 mM Na+, 0.13 mM K+, 0.62mM Mg+2, 0.26 mM N03-, 0.03 mM HP04-2, 0.21 mMMS04-2, and 1.34 mM Cl-); Not reported; 8.3±0.3 (water)			
Control Dark, Control, and Blank Concentration	yes; Not reported; Not reported 0.2 - 0.4 µM			
Analytical Method, Analytical Details, and Results Per Degredation Parameter	High-performance capillary gas chromatography; RSD±10%; Concentrated by closed-loop stripping technique of Grob and Zurcher; 7			
Results Remarks	80% of the aerobic removal occurred within the first 4.7 cm of the column. Increase in removal overtime indicate that the bacterial population grew and/or had acclimated to the test substance			
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported			
Results Details	First order rate constant for DCBs: 0.5 - 1 / d			
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported			
Results Value, Direct Quantum Yield Results, and Transformation Products	Approx. 20% (aerobic), negligible (anaerobic); Not Reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and stock solution stability was reported.
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Study Citation:	Kuhn, E. P., Colberg, P. J., Schnoor, J. L., Wanner, O., Zehnder A, J. B., Schwarzenbach, R. P. (1985). Microbial transformations of substituted benzenes during infiltration of river water to groundwater laboratory column studies. Environmental Science & Technology 19(10):961-968.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	4931552			
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Temperature, pH, synthetic river water composition, and some sediment characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was reported with minimal detail but this is not likely to have impacted study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology showed the increased biodegradation of the test substance at constant input, not an overall biodegradation rate.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were only on the influent and effluent; collection methods were acceptable but other removal pathways cannot be defined based on this method.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variation between replicates was not accounted for; analytical method relative variation was around 10%.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Data only reported graphically and for one column, extraction efficiency not reported, limits of detection not reported. Analytical method non-standard and low detail. Insufficient evidence to confirm biodegradation as the removal pathway reported, sorption not considered.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations consulted but low detail and not isomer specific.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were comparable to the field study however method overall was low in detail and sorption removal was not accounted for.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Kuhn, E. P., Colberg, P. J., Schnoor, J. L., Wanner, O., Zehnder A, J. B., Schwarzenbach, R. P. (1985). Microbial transformations of substituted benzenes during infiltration of river water to groundwater laboratory column studies. Environmental Science & Technology 19(10):961-968.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	4931552

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

* Related References: Cited in ECHA

Study Citation:	Luo, J., Kurt, Z., Hou, D., Spain, J. C. (2015). Modeling aerobic biodegradation in the capillary fringe. Environmental Science & Technology 49(3):1501-1510.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	4912116

EXTRACTION	
Parameter	Data
CASRN and Test Material	not reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	No; other; Calculation (biodegradation model); other: Aerobic Biodegradation Model: biodegradation kinetics with diffusive transport processes
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: NA
Oxygen and Inoculum	aerobic; oxygen input from surface; natural sediment: freshwater: Previously conducted field column used for developing modeled data was inoculated with a suspension of CB-, 1,2DCB-, and 1,4DCB-degrading bacteria.
Duration, Parameter, System, and Sampling Frequency	Not applicable; test mat.; Based on previously conducted column studies; model includes oxygen-, substrate-, and biomass-dependent biodegradation kinetics along with diffusive transport processes. The column contained subsurface sediments from a field site. Anoxic water containing CB, 1,2-DCB, and 1,4-DCB was continuously pumped through the bottom of the column, while filtered atmospheric air was pumped into the top. Contaminant transport assumed to be one-dimensional (vertical) transport in the capillary fringe (10 cm above water table) and unsaturated zone with steady-state soil moisture distributions.; Not applicable
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not applicable; Not applicable; Not applicable; yes; model assumed biodegradation reactions occur only in the liquid phase; Not applicable; Not applicable
Control Dark, Control, and Blank	yes; Not applicable; Abiotic control. Modeled contaminant concentrations in a field sediment column 0 to ca. 25 cm above the water table under abiotic conditions - 1,2-dichlorobenzene (values estimated from line graph): decreased from ca. 1.3 mg/L at 0 cm to 0.2 mg/L at 25 cm; measured concentrations from previous study: 1.25 mg/L (0 cm), 1 mg/L (10 cm), 0.50 mg/L (20 cm) and 0.25 mg/L (25 cm).
Concentration	ca. 0.5 - ca. 1.25 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	reactive transport model; Parameters for reactive transport modeling: microbial max growth rate, monod constant, yield coefficient, decay coefficient, conversion factor, diffusion coefficient in air and water, HLC; test material
Results Remarks	Modeled contaminant concentrations in a field sediment column 0 to ca. 25 cm above the water table under biotic conditions in which microbial biomass peak concentrations (10 ⁵ mg/L) are at ca. 7cm above the water table - 1,2-dichlorobenzene (values estimated from line graph): decreased from ca. 0.5 mg/L at 0 cm to > 0.1 mg/L at 5 to 25 cm (values estimated from line graph).
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	not reported
Mean Total Recovery Results and Results Per Recovery	not applicable; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	not reported; not reported; not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified

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Study Citation:	Luo, J., Kurt, Z., Hou, D., Spain, J. C. (2015). Modeling aerobic biodegradation in the capillary fringe. Environmental Science & Technology 49(3):1501-1510.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	4912116			
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	Metric 3:	Study Controls	High	Abiotic model was included.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	Medium	Limited detail on environmental conditions used for model.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	Steady state assumptions were described.
Domain 4: Test Organisms	Metric 9:	Outcome Assessment Methodology	Medium	Biodegradation modeled based on results from inoculum specifically chosen based on its capacity to degrade chlorobenzenes.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment	Metric 11:	Test Substance Identity	Medium	Biodegradation rate not reported.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis	Metric 15:	Data Reporting	Medium	Biodegradation kinetics and diffusive transport processes not specifically reported for target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Model calculations were outlined.
Domain 8: Other	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s)
	Metric 18:	QSAR Models	High	Model endpoint clearly defined.

Overall Quality Determination**High**

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Study Citation:	Luo, J., Kurt, Z., Hou, D., Spain, J. C. (2015). Modeling aerobic biodegradation in the capillary fringe. Environmental Science & Technology 49(3):1501-1510.		
OECD Harmonized Template:	Biodegradation in Sediment		
HERO ID:	4912116		
Domain		EVALUATION Rating	Comments

Study Citation:	Masunaga, S., Susarla, S., Yonezawa, Y. (1996). Dechlorination of chlorobenzenes in anaerobic estuarine sediment. Water Science and Technology 33(6):173-180.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	660279

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Dechlorination in anaerobic sediment
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Tokyo Kasei Kogyo Co Ltd. Japan; NR; Purity not reported; used without purification
Oxygen and Inoculum	anaerobic; natural water / sediment: Sediment: collected in 1992 from mouth of Tsurumi river, black in color, macrobenthic organisms present; sediment passed through 2 mm sieve. River water from just above bottom of surface was used to make sediment slurry
Duration, Parameter, System, and Sampling Frequency	1 yr; test mat.; Test tubes were placed in an anaerobic chamber (10% hydrogen, 10% carbon dioxide, 80% nitrogen); sampled once a day at the beginning and then at intervals as the experiment proceeded
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Sediment: NaCl, sulfate, nitrate concentrations=1.7%, 1.98E+3 mg/L, below LOD, respectively; River water: NaCl, sulfate, nitrate concentrations=1.5%, 1.84E+3 mg/L, 4.0 mg/L, respectively; Not reported; 5.6
Control Dark, Control, and Blank Concentration	Not reported; Not reported; 8 tubes autoclaved 4E-6 mol/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; quantification using selected ion monitoring method; results corrected by recovery rate based on standard; recovery rates for all CBs tested ranged from 40-90%; 7
Results Remarks	Not reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	36.9 days; Not reported; Sterile control; first order rate constant in autoclaved sediment=-0.0002/day
Results Details	first order rate constant in sediment=0.0188/day
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; intermediate detected: monochlorobenzene (100%)

EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported; purity was omitted and the sample was used without further purification.
Domain 2: Test Design	Metric 3:	Study Controls	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Masunaga, S., Susarla, S., Yonezawa, Y. (1996). Dechlorination of chlorobenzenes in anaerobic estuarine sediment. Water Science and Technology 33(6):173-180.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	660279			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were minor omissions in testing conditions (dark/light conditions); however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Replicate test tubes used, results not reported, variation or consistency not reported.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Microbial activity was not reported or characterized; however, it is indicated based on the experimental disappearance rates compared against autoclaved sediment samples.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Some sampling details were omitted but this was unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The results were adjusted for recovery loss.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Detail of analytical results limited; does not hinder interpretation of 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	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: HSDB

Study Citation:	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. Environmental Science & Technology 30(1):31-37.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1486742

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Laboratory Batch Microcosms (LBMs)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; analytical grade
Oxygen and Inoculum	aerobic; natural water / sediment: groundwater and sediment samples collected from a shallow, glaciofluvial, unconfined sandy aquifer 1 km north of Vejen City in Jutland, Denmark
Duration, Parameter, System, and Sampling Frequency	5 months; test mat.; 2.5L Glass bottles; not reported in tables, could be estimated from figure 3
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank Concentration	yes; Not reported; Included; formaldehyde-inhibited LBM Not Reported
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC with FID and ECD; descriptions in other references; 7
Results Remarks	alpha=0.2/day, lag phase=0 days
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	first-order degradation constant: k=0.02/day
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not reported; Not Reported; Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	High	The test substance was identified clearly.
	Metric 2:	Medium	Source and specific purity was not reported; analytical grade specified.
Domain 2: Test Design	Metric 3:	High	Controls were appropriate.

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Study Citation:	Nielsen, P. H., Bjerg, P. L., Nielsen, P., Smith, P., Christensen, T. H. (1996). In situ and laboratory determined first-order degradation rate constants of specific organic compounds in an aerobic aquifer. Environmental Science & Technology 30(1):31-37.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1486742			
Domain	Metric	EVALUATION		Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Some testing conditions were not reported (such as microcosm pH); however, sufficient data were reported to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Microbial activity not reported/assessed.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited details regarding this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

Study Citation:	Nielsen, P. H., Christensen, T. H. (1994). Variability of biological degradation of aromatic hydrocarbons in an aerobic aquifer determined by laboratory batch experiments. <i>Journal of Contaminant Hydrology</i> 15(4):305-320.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1482449

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Laboratory batch microcosm with sediment and groundwater from a shallow unconfined, glaciofluvial sandy aquifer near Vejen City, Jutland, Denmark
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; natural sediment: sediment from glaciofluvial sandy aquifer near Vejen City, Jutland, Denmark
Duration, Parameter, System, and Sampling Frequency	Up to 149 days; DCB lag phase: 4.5 ± 2.6 days (range 0-7); degradation stopped after 82 days; test mat.; 2.5L glass bottles with glass valves; 24 sample times
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not Reported; suspended clay and silt particles (>80% sand, max. 1% silt); aerobic aquifer; Not reported; 4.6-6.1
Control Dark, Control, and Blank Concentration	yes; Not reported; Two microcosms sterilized with 250 mg/L formaldehyde 119 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Not reported; 7
Results Remarks	Not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	81.0 ± 5.2 (range 79-82); ca. 80%/149 days; Not Reported; Not reported

EVALUATION

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

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Study Citation:	Nielsen, P. H., Christensen, T. H. (1994). Variability of biological degradation of aromatic hydrocarbons in an aerobic aquifer determined by laboratory batch experiments. Journal of Contaminant Hydrology 15(4):305-320.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1482449			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions temperatures); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Inoculum source was reported; microbial activity was not assessed/reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details were reported regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited details were reported regarding this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Qiao, W., Luo, F., Lomheim, L., Mack, E. E., Ye, S., Wu, J., Edwards, E. A. (2018). Natural attenuation and anaerobic benzene detoxification processes at a chlorobenzene-contaminated industrial site inferred from field investigations and microcosm studies. Environmental Science & Technology 52(1):22-31.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	4272187

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: laboratory microcosm study using chlorobenzene mixture.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Sigma-Aldrich; NR; $\geq 99\%$ Notes: 1,2-DCB
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Contaminated sediment thought to have the highest dechlorinating activity from former chemical plant in China.
Duration, Parameter, System, and Sampling Frequency	5 years; test mat.; Chlorobenzene mixture containing 1,2,4-TCB, 1,2-DCB, 1,3-DCB, 1,4-DCB and MCB; bottles containing ~15 mL sediment and 165 mL groundwater; 4 treatments: 1) sterile controls (Bottles 1-4); 2) in-situ conditions (Bottles 5-8); 3) electron donor amended treatment (Bottles 9-12); and 4) a benzene only treatment (Bottles 13-16); room temperature; 10% microcosm transfer plus 1,2- and 1,3-DCB at day 400; second 10% microcosm transfer plus 1,2-DCB at day 647.; not reported
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	when appropriate.; not reported; contaminated sediment collected July 2014 from a depth of 1.5-2 m below surface.; groundwater collected at a point off the contaminated site July 2014.; not reported; 6.64 (water)
Control Dark, Control, and Blank Concentration	yes; not reported; Sterile control spiked with mercuric chloride and sodium azide. 2.4 - 180 uM
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; 87-105% mass balance (from supplemental); test mat.
Results Remarks	1,2-DCB was dechlorinated to MCB after a lag of ~200 days at rates of 0.03-0.1/day. After 10% microcosm transfer and addition of 1,2- and 1,3-DCB on day 400 a lag of 40-120 days was followed by increased degradation. After second transfer and addition of 1,2-DCB, degradation rate increased to over 20 uM/day.
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not applicable; not applicable; not applicable; Not Reported
Results Details	not reported
Mean Total Recovery Results and Results Per Recovery	$75\pm 6\%$ (from supplemental); No change was noted in CB concentration in control samples over the course of 1 year.
Results Value, Direct Quantum Yield Results, and Transformation Products	up to 100% (from figure); not reported; monochlorobenzene (from figure)

EVALUATION

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

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Study Citation:		Qiao, W., Luo, F., Lomheim, L., Mack, E. E., Ye, S., Wu, J., Edwards, E. A. (2018). Natural attenuation and anaerobic benzene detoxification processes at a chlorobenzene-contaminated industrial site inferred from field investigations and microcosm studies. Environmental Science & Technology 52(1):22-31.		
OECD Harmonized Template:		Biodegradation in Sediment		
HERO ID:		4272187		
Domain	Metric	EVALUATION		Comments
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Deficiencies in the outcome assessment methodology of the assessment or reporting were likely to have a substantial impact on results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical 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	Medium	The study results were reasonable.

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Study Citation:	Qiao, W., Luo, F., Lomheim, L., Mack, E. E., Ye, S., Wu, J., Edwards, E. A. (2018). Natural attenuation and anaerobic benzene detoxification processes at a chlorobenzene-contaminated industrial site inferred from field investigations and microcosm studies. Environmental Science & Technology 52(1):22-31.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	4272187

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

Overall Quality Determination High

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

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen and Inoculum	aerobic; mixture of sewage, soil and natural water: Not reported
Duration, Parameter, System, and Sampling Frequency	Sampling was done in April and December; test mat.; Samples were collected from influent, effluent out of biodisc system, and sludge from storage tanks.; Samples were taken in duplicate.
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	24 or 72 hour composite samples were collected.; Not reported; Not reported; Not reported; Not reported; Not reported
Control Dark, Control, and Blank Concentration	Not Reported; Not reported; Sample blanks from the normal sampling program were taken. ≥ 1.7 - ≤ 40.5 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Not reported; 7
Results Remarks	Not reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Recoveries of >60% were observed for most chemicals.
Results Value, Direct Quantum Yield Results, and Transformation Products	Influent/effluent removal % in April and December sampling: 100.; Not Reported; Not reported

EVALUATION

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

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Study Citation:	Roy F. Weston Inc, (1980). Characterization and fate of the discharge of priority pollutants from the Rohm and Haas Philadelphia plant into the Delaware low level collector of the Philadelphia sewer.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1333014			
Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	High	Some details regarding the test substance preparation and storage conditions were omitted but are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in the testing conditions but they are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Differences in the testing conditions between the sample groups were not clearly reported but were unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and appropriate for the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not clearly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Compound specific percent recoveries for influent and effluent samples and detection limits were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**High**

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: None
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: near shore 3" and 2" diameter sediment cores from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	NR; natural sediment/artificial pore water; coarse-grained, sandy, organic carbon fraction of 0.8-2.6%; artificial pore water: NaCl, Na2SO4, CaCl2, NH4Cl, MgCl2, KCl, K2HPO4; NR; 6.8
Control Dark, Control, and Blank Concentration	yes; NR; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca .2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; NR; test mat
Results Remarks	none
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	NR; NR; NR; NR
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	NR; NR
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	The test substance source was 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 included.

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Study Citation:		Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.		
OECD Harmonized Template:		Biodegradation in Sediment		
HERO ID:		1467139		
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups
	Metric 8:	System Type and Design	High	The system type and design were appropriate
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was reported.
	Metric 10:	Sampling Methods	Medium	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculation methods were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**NEED TO FIX**

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: off shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; fine-grained, highly cohesive, organic carbon fraction of 3.0-5.9%; artificial pore water: NaCl, CaCl ₂ , NH ₄ Cl, MgCl ₂ , KCl, K ₂ HPO ₄ ; not reported; 7.4
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; not reported; not reported

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: off shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; fine-grained, highly cohesive, organic carbon fraction of 3.0-5.9%; artificial pore water: NaCl, CaCl ₂ , NH ₄ Cl, MgCl ₂ , KCl, K ₂ HPO ₄ ; not reported; 7.4
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; not reported; not reported

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: near shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; coarse-grained, sandy, organic carbon fraction of 0.8-2.6%; artificial pore water: NaCl, CaCl ₂ , NH ₄ Cl, MgCl ₂ , KCl, K ₂ HPO ₄ ; not reported; 7.4
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	>50%; not reported; not reported

EVALUATION

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: near shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; coarse-grained, sandy, organic carbon fraction of 0.8-2.6%; artificial pore water: NaCl, Na2SO4, CaCl2, NH4Cl, MgCl2, KCl, K2HPO4; not reported; 6.8
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; not reported; not reported

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: off shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; fine-grained, highly cohesive, organic carbon fraction of 3.0-5.9%; artificial pore water: NaCl, Na2SO4, CaCl2, NH4Cl, MgCl2, KCl, K2HPO4; not reported; 6.8
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; not reported; not reported

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1467139

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: anaerobic degradation in sediment slurry
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-D
Oxygen and Inoculum	anaerobic; natural sediment: near shore 3" and 2" diameter sediment core from Onondaga Lake, Syracuse, NY
Duration, Parameter, System, and Sampling Frequency	600 days; test mat; 12 deg C incubation temperature; amber bottles with 5% (w/v) wet sediment in artificial pore water; periodically
Results Sample Time, Compartment, Sludge Compartment, Water	not reported; natural sediment/artificial pore water; coarse-grained, sandy, organic carbon fraction of 0.8-2.6%; artificial pore water: NaCl, Na2SO4, CaCl2, NH4Cl, MgCl2, KCl, K2HPO4; not reported; 6.8
Compartment, CEC, and pH	
Control Dark, Control, and Blank Concentration	yes; not reported; sterile control: autoclaved at 15 psi and 130 deg C for 60 min on three consecutive days ca 0.2 mg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-FID; not reported; test mat
Results Remarks	Not Reported
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not reported; not reported; not reported; not reported
Results Details	physical mechanism such as volatile loss, was not observed
Mean Total Recovery Results and Results Per Recovery	not reported; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	<50%; not reported; not reported

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

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Study Citation:	Smith, A. M., Kirisits, M. J., Reible, D. D. (2012). Assessment of potential anaerobic biotransformation of organic pollutants in sediment caps. New Biotechnology 30(1):80-87.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1467139			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	there was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Susarla, S., Masunaga, S., Yonezawa, Y. (1996). Biotransformation of halogenated benzenes in anaerobic sediments. Environmental Science and Pollution Research 3(2):71-74.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	1969905

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; monochlorobenzene
Confidentiality, EndPoint, Type, Guideline	none; other: transformation product; experimental; other
Solvent, Reactivity, Storage, Stability	methanol; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Tokyo Kasei Kogyo Co. Ltd. (TCI), Tokyo, Japan; Not Reported; NR; used without further purification Notes: degradation product of target chemical
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: sediment collected from a industrial contaminated river bed at the mouth of the Tsurumi river
Duration, Parameter, System, and Sampling Frequency	1 year; test mat.; sealed test tube place in anaerobic chamber; not specified
Results Sample Time, Compartment, Sludge Compartment, Water	not specified; not specified; Sediment interstitial water samples with 1.7% NaCl; River water sampled just above sediment samples with 1.5% NaCl; not reported; sediment slurry pH 5.6
Compartment, CEC, and pH	
Control Dark, Control, and Blank	not reported; not reported; Autoclaved sterile controls included
Concentration	4E-6 mole/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; detection limit: 1E-8 mole/L; d-naphthalene used as internal standard; disappearance of test mat.
Results Remarks	1,2-dichlorobenzene was not a reported test substance in this paper; composition profile for contaminated river water/sediment was not reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	138 days; r-squared = 0.93; not reported; not reported
Results Details	first-order rate constant: 0.0050±0.007/day
Mean Total Recovery Results and Results Per Recovery	Method recovery rates for all analytes ranged from 50-99%; not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	not reported; not reported; not detected; possible intermediate, benzene, not monitored

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Appropriate control was included.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.

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Study Citation:	Susarla, S., Masunaga, S., Yonezawa, Y. (1996). Biotransformation of halogenated benzenes in anaerobic sediments. Environmental Science and Pollution Research 3(2):71-74.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	1969905			
		EVALUATION		
Domain	Metric	Rating	Comments	
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Composition profile of contaminated river water and sediment not reported.
	Metric 6:	Testing Conditions	High	Testing conditions reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Limited detail regarding microbial viability of sediment.
	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 was appropriate; data for degradation product of 1,2-dichlorobenzene.
	Metric 12:	Test Substance Purity	Low	Limited detail regarding sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was exclusively due to microbial degradation.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information on the composition profile of the matrix, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		Medium		

Study Citation:	Susarla, S., Masunaga, S., Yonezawa, Y. (1997). Kinetics of the Sequential Dechlorination of Chloroorganics in an Anaerobic Sediment. Bulletin of Environmental Contamination and Toxicology 58(2):227-233.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	660558			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Dechlorination in anaerobic sediment			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Tokyo Kasei Kogyo Co Ltd. Japan; NR; High purity; used without purification			
Oxygen and Inoculum	anaerobic; natural water / sediment: Sediment and Tsurumi river water slurry, 5mL			
Duration, Parameter, System, and Sampling Frequency	ca. 325 days; test mat.; Test tube; frequent intervals			
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not reported; Not reported; Not reported; Not reported; Not reported; 5.6			
Control Dark, Control, and Blank Concentration	Not reported; Not reported; Not reported			
Analytical Method, Analytical Details, and Results Per Degredation Parameter	2.6 g/L			
Results Remarks	GC-MS with selected-ion-monitoring method; Loss of compound over time and determination of rate constant from a linear regression analysis of transformation over time.; 7			
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not reported			
Results Details	Not reported; Not reported; Not reported; Not reported			
Mean Total Recovery Results and Results Per Recovery	first-order rate constant=0.0016/day			
Results Value, Direct Quantum Yield Results, and Transformation Products	80-100%; Not reported			
	Not reported; Not Reported; Not reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Uninformative	Controls not included; no reference substance, no abiotic control, no sterilized 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.
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Study Citation:	Susarla, S., Masunaga, S., Yonezawa, Y. (1997). Kinetics of the Sequential Dechlorination of Chloroorganics in an Anaerobic Sediment. Bulletin of Environmental Contamination and Toxicology 58(2):227-233.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	660558			
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	Medium	25 replicates were indicated; however, no discussion on average of 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 Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	No indication of microbial activity, or lack thereof.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Rate constant reported; % degradation and half-life not reported.
	Metric 12:	Test Substance Purity	Medium	Sampling details were omitted; however, this was unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail on outcome of 25 replicates, microbial activity, no control data reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Lack of control groups limits the validity of the results.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Uninformative**

Study Citation:	Susarla, S., Yonezawa, Y., Masunaga, S. (1998). Reductive transformations of halogenated aromatics in anaerobic estuarine sediment: Kinetics, products and pathways. Water Research 32(3):639-648.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5237531

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, EndPoint, Type, Guideline	None; inherent biodegradability; Experimental; other: Guideline not specified; biodegradation in anerobic sediment
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Tokyo Kasei Kogyo (TCI), Tokyo; Liquid; Used without further purification
Oxygen and Inoculum	anaerobic; natural water / sediment: brackish: Sediment and river water collected from mouth of Tsurumi River, Japan. Visual evidence of sulfate-reducing activity
Duration, Parameter, System, and Sampling Frequency	1 y; test mat.; 25 screw-top test tubes with 5 mL sediment-water slurry, hand-mixed 3x/wk by inverting test tubes several times; Immediately after spiking, once a day, progressing to longer intervals
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	Not Reported; Sediment-water slurry; Not Reported; Not Reported; Not Reported; 5.6 (slurry); 4.8 (sediment pore water)
Control Dark, Control, and Blank Concentration	Not Reported; Not reported; Autoclaved sediment samples (120°C for 20 min) 4 µmol/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Slurry extracted with acetone and benzene; MS ChemStation used to operate GC-MS; 7
Results Remarks	20 d lag period observed
Half-life, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	36.9 d; Not reported; Autoclaved sediment sample; Loss rate constant not significantly different from 0 in sediment-water slurry
Results Details	k=0.0188 / d
Mean Total Recovery Results and Results Per Recovery	50 - 100%; Not reported
Results Value, Direct Quantum Yield Results, and Transformation Products	Not Reported; Not Reported; Monochlorobenzene

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and qualitative purity information was provided.
Domain 2: Test Design	Metric 3:	Study Controls	High	An autoclaved sediment sample was included as a concurrent control.
	Metric 4:	Test Substance Stability	High	The test substance preparation and sample storage conditions were reported and appropriate for the study and the substance.

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Study Citation:	Susarla, S., Yonezawa, Y., Masunaga, S. (1998). Reductive transformations of halogenated aromatics in anaerobic estuarine sediment: Kinetics, products and pathways. Water Research 32(3):639-648.			
OECD Harmonized Template:	Biodegradation in Sediment			
HERO ID:	5237531			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions (anerobic, redox, pH, temperature) were reported and appropriate for the study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sample methods addressed the outcomes of interest and used widely acceptable approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between study groups was addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were suitable for the detection of the target chemical, some recovery information was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Brunsbach, F. R., Reineke, W. (1994). Degradation of chlorobenzenes in soil slurry by a specialized organism. Applied Microbiology and Biotechnology 42(2-3):415-420.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	659847

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline aerobic biodegradation study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Oxygen, pH, and CEC	aerobic; soil 1= 7.6, soil 2 6.0; phosphate buffer pH 7.3; Not reported
Test Type, Test Temperature, and Test Details	laboratory; 27°C; soil slurries with 29% suspended solids w/w dry soil inoculated with chlorobenzene-degrading organisms
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	silt loam; Soil 1: 8% organic matter; chloride 0.15 mmol/g soil; Soil 2: 2.6% organic matter; chloride 0.73 mmol/g soil; Not reported
Soil Classification, Microbial Biomass, and Humidity	Soil 1: silty loam soil, Soil 2: loamy sand soil; Indigenous soil population Soil 1: 1.5E+5 cfu on malt extract agar, 6E+6 cfu and nutrient broth agar, 4E+6 cfu on plate count agar, soil 2: 6.5E+5 cfu on malt extract agar, 3E+6 cfu and nutrient broth agar, 2E+6 cfu on plate count agar: moisture content soil 1: 30-33%, soil 2: 2%
Duration, Parameter, System, and Sampling Frequency	1 month; test mat.; Teflon-sealed glass tubes; Not reported
Control and Blank	abiotic control included; Not reported
Concentration	1 mmol/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	reverse phase HPLC; Vapor phase - headspace analysis; chloride detected in aqueous phase by ion chromatography; Not reported
Results Remarks	1,2-Dichlorobenzene persisted after 1 month incubation in soil slurry 2. No chloride elimination was detected in soil slurry 1.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Reference Substance Compartment Results	No significant degradation; Not reported; Not reported; Not reported; Not reported
Results Details	Not reported
Mean Total Recovery Results and Results Per Recovery	Not reported; Soil 1: 12% in headspace, 13% in water phase, 75% in solid phase; Soil 2: 17% in headspace, 20% in water phase, 63% in solid phase

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	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Brunsbach, F. R., Reineke, W. (1994). Degradation of chlorobenzenes in soil slurry by a specialized organism. Applied Microbiology and Biotechnology 42(2-3):415-420.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	659847			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling details were omitted but this was unlikely to impact the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and extraction efficiency 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 Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Demirjian, Y. A., Joshi, A. M., Westman, T. R. (1987). Fate of organic compounds in land application of contaminated municipal sludge. Journal of Water Pollution Control Federation 59(1):32-38.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1359392

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	No; Inherent biodegradability; Inherent biodegradation, sludge amended soil; Not Reported
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Muskegon County Wastewater Treatment; NR; NA Notes: Applied from sludge from wastewater treatment
Oxygen, pH, and CEC	Not specified; NR; NR
Test Type, Test Temperature, and Test Details	field trial; NR; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; NR; NR
Soil Classification, Microbial Biomass, and Humidity	Rubicon sand; NR; NR
Duration, Parameter, System, and Sampling Frequency	241 days; Test material; Field plots 3.05 m by 3.05 m with sludge from aeration cell hand applied. Sludge tilled within 5 days post-application.; 0, 5, 122, and 241 days
Control and Blank	NA; Control plots without sludge amendment were included.
Concentration	580 ug/kg
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC-MS; Samples soxhlet extracted and concentrated using a Kuderna-Danish apparatus; Disappearance of test substance
Results Remarks	Not detected in background level of soil 0 - 15.2 cm or 22.9 - 38.1 cm.5 days: 816 ug/kg (0 - 15.2 cm), not detected (22.9 - 38.1 cm)122 days: 113 ug/kg (0 - 15.2 cm), 45 ug/kg (22.9 - 38.1 cm)241 days: 115 ug/kg (0 - 15.2 cm), 23 ug/kg (22.9 - 38.1 cm)Percent degradation calculated by reviewer: $([DCB\_0] - ([DCB\ 0 - 15.2\ cm] + [DCB\ 22.9 - 38.1\ cm]))/[DCB\_0]$
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	76%; Not Reported; 241 days; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for studies involving field samples.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	A blank control was included but a sterile control was not; disappearance could therefore not be confirmed as due to biodegradation.

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Study Citation:	Demirjian, Y. A., Joshi, A. M., Westman, T. R. (1987). Fate of organic compounds in land application of contaminated municipal sludge. Journal of Water Pollution Control Federation 59(1):32-38.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	1359392			
Domain		EVALUATION		Comments
Metric		Rating		
	Metric 4:	Test Substance Stability	N/A	Not applicable for studies involving field samples.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No field conditions were reported; limited soil and sludge characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is consistently used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Biodegradation rate and percentages were not reported; products were not identified. Because a sterile control was not included, loss could not be confirmed to be biodegradation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported generally, frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty and variability were not explicitly accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and extraction efficiency were not reported. Raw data was reported. Percent loss was calculated by the reviewer.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Loss could not be attributed to biodegradation solely.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quality Determination		Medium		

Study Citation:	Kurt, Z., Spain, J. C. (2013). Biodegradation of chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in the vadose zone. Environmental Science & Technology 47(13):6846-6854.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	1752483

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: Degradation in vadose zone
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; Sigma-Aldrich; NR; 99% Notes: 12DCB
Oxygen, pH, and CEC	aerobic/anaerobic; 6-9 (from figure); not reported
Test Type, Test Temperature, and Test Details	laboratory; 22–24 °C; The porosity of the material was measured as 35%, and the seepage velocity in the column was calculated to be 51 m/h. An aerobic zone was established/maintained by passing humidified and filter sterilized air across the top of the column.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay; not reported; not reported
Soil Classification, Microbial Biomass, and Humidity	12 cm above to 12 cm below the capillary fringe.; Chlorobenzene degrading bacteria previously isolated from the core samples.: 15% by weight
Duration, Parameter, System, and Sampling Frequency	not reported; test mat.; multiport glass column was packed with sand or subsurface solids; 6 ports along the length of column
Control and Blank	Not Reported; anoxic conditions control
Concentration	ca 0.6 (from figure) - 5 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	GC/FID; not reported; biodegradation rate (fluxes)
Results Remarks	biodegradation was robust, oxygen dependent, and concentrated within the capillary fringe.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and References Substance Compartment Results	3.7 mg/sq m/day; ± 0.5; not reported; not reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	not reported; For anoxic control, 0.1 and 0.3 mg/L difference between influent and effluent concentrations in control phase and active phase, respectively.

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

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Study Citation:	Kurt, Z., Spain, J. C. (2013). Biodegradation of chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in the vadose zone. Environmental Science & Technology 47(13):6846-6854.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	1752483			
Domain	Metric	EVALUATION		Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Nominal concentrations were provided, but, the levels were not sufficiently reported.
	Metric 6:	Testing Conditions	Low	Testing conditions were confusing.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	An inoculum that was pre-adapted to the test substance was used for a biodegradation rate study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty in the measurements were reported in the study however; the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
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Study Citation:		Kurt, Z., Spain, J. C. (2013). Biodegradation of chlorobenzene, 1,2-dichlorobenzene, and 1,4-dichlorobenzene in the vadose zone. Environmental Science & Technology 47(13):6846-6854.		
OECD Harmonized Template:		Biodegradation in Soil		
HERO ID:		1752483		
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Meharg, A. A., Wyatt, C. L., Thompson, I. P., Bailey, M. J., Ellis, R. J., Maguire, N. (1998). Response of soil microbial biomass to 1,2-dichlorobenzene addition in the presence of plant residues. Environmental Toxicology and Chemistry 17(8):1462-1468.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2725058

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; experimental; other: effect of 1,2-dichlorobenzene and plant material on microcosms.
Solvent, Reactivity, Storage, Stability	NR; NR; 185 kBq/g; NR; NR
Radiolabel, Source, State, Purity	None; uniformly labeled [14C]; Sigma, Dorset, UK; NR; >99%; >95%
Oxygen, pH, and CEC	aerobic; 7.4; not reported
Test Type, Test Temperature, and Test Details	laboratory; 20°C; Fresh Holcus lanatus grass roots added to half of the microcosms.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay loam; not reported; not reported
Soil Classification, Microbial Biomass, and Humidity	agricultural soil with no known previous exposure history to 1,2-dichlorobenzene.; not reported: 80% field capacity
Duration, Parameter, System, and Sampling Frequency	120 days; other; conical flasks containing 100 g dry soil maintained at 80% field capacity moisture incubated for 7 days prior to experimentation.; not reported
Control and Blank	Control without 1,2-dichlorobenzene; Control without plant root
Concentration	10 ug/g soil dry weight
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation analyzer; Not Reported; % removal with plant material; without plant material
Results Remarks	The presence of roots greatly stimulated bacterial numbers, consistently by two- to threefold, both in the presence and absence of 1,2-dichlorobenzene.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and References Substance Compartment Results	19%; 12% (from figure); ~+/-1% (from figure); 114 days (from figure); not reported; Not Reported
Results Details	Mineralization was both time and root dependent.
Mean Total Recovery Results and Results Per Recovery	not reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Concurrent controls were included.

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Study Citation:	Meharg, A. A., Wyatt, C. L., Thompson, I. P., Bailey, M. J., Ellis, R. J., Maguire, N. (1998). Response of soil microbial biomass to 1,2-dichlorobenzene addition in the presence of plant residues. Environmental Toxicology and Chemistry 17(8):1462-1468.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	2725058			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was reported, but are not routinely used for similar study types; however, the deviation was not likely to have a substantial impact on study results
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				

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Study Citation:	Meharg, A. A., Wyatt, C. L., Thompson, I. P., Bailey, M. J., Ellis, R. J., Maguire, N. (1998). Response of soil microbial biomass to 1,2-dichlorobenzene addition in the presence of plant residues. Environmental Toxicology and Chemistry 17(8):1462-1468.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	2725058

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

Overall Quality Determination	Medium

Study Citation:	Van Der Meer, J. R., Bosma, T. N., De Bruin, W. P., Harms, H., Holliger, C., Rijnaarts, H. H., Tros, M. E., Schraa, G., Zehnder, A. J. (1992). Versatility of soil column experiments to study biodegradation of halogenated compounds under environmental conditions. Biodegradation 3(2-3):265-284.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	647132			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Water saturated soil column experiment for biodegradation			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Oxygen, pH, and CEC	aerobic; Not reported; Not reported			
Test Type, Test Temperature, and Test Details	laboratory; Not reported; Soil columns in sediment of Rhine River and Dune infiltration area near Amsterdam			
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Not reported; Not reported			
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported			
Duration, Parameter, System, and Sampling Frequency	Not reported; not specified; Soil column; Not reported			
Control and Blank	Not reported; Not reported			
Concentration	Not reported			
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; Not reported; % removal			
Results Remarks	Observed degradation			
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	between 25-90%; Not reported; Not reported; Not reported; Not reported			
Results Details	Not reported			
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was clearly identified.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Uninformative	Concurrent control groups were not included.
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Study Citation:	Van Der Meer, J. R., Bosma, T. N., De Bruin, W. P., Harms, H., Holliger, C., Rijnaarts, H. H., Tros, M. E., Schraa, G., Zehnder, A. J. (1992). Versatility of soil column experiments to study biodegradation of halogenated compounds under environmental conditions. Biodegradation 3(2-3):265-284.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	647132			
Domain	Metric	EVALUATION Rating	Comments	
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	There were multiple omissions in testing conditions.
	Metric 7:	Testing Consistency	N/A	Not applicable; multiple study groups were not reported.
	Metric 8:	System Type and Design	Medium	Some system design details were not provided; however, this was not likely to have influenced the interpretation of the results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Microbial biomass not reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Basis for biodegradation not reported; very large range reported.
	Metric 12:	Test Substance Purity	Low	Sampling details were omitted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Insufficient detail; analytical method not reported; The target chemical concentrations, extraction efficiency, percent recovery, and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No details; degradation kinetics not specified.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Insufficient data; Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Uninformative**

Study Citation:	Van Der Meer, J. R., Bosma, T. N., De Bruin, W. P., Harms, H., Holliger, C., Rijnaarts, H. H., Tros, M. E., Schraa, G., Zehnder, A. J. (1992). Versatility of soil column experiments to study biodegradation of halogenated compounds under environmental conditions. Biodegradation 3(2-3):265-284.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	647132			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Water saturated soil column experiment for biodegradation			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Oxygen, pH, and CEC	anaerobic; Not reported; Not reported			
Test Type, Test Temperature, and Test Details	laboratory; Not reported; Soil columns in sediment of Rhine River and Dune infiltration area near Amsterdam; sulfate reducing conditions			
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; Not reported; Not reported			
Soil Classification, Microbial Biomass, and Humidity	Not reported; Not reported: Not reported			
Duration, Parameter, System, and Sampling Frequency	Not reported; not specified; Soil column; Not reported			
Control and Blank	Not reported; Not reported			
Concentration	Not reported			
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Not reported; Not reported; % removal			
Results Remarks	Observed degradation			
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	between 25-90%; Not reported; Not reported; Not reported; Not reported			
Results Details	Not reported			
Mean Total Recovery Results and Results Per Recovery	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was clearly identified.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Uninformative	Concurrent control groups were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
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Study Citation:	Van Der Meer, J. R., Bosma, T. N., De Bruin, W. P., Harms, H., Holliger, C., Rijnaarts, H. H., Tros, M. E., Schraa, G., Zehnder, A. J. (1992). Versatility of soil column experiments to study biodegradation of halogenated compounds under environmental conditions. Biodegradation 3(2-3):265-284.			
OECD Harmonized Template:	Biodegradation in Soil			
HERO ID:	647132			
Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	There were multiple omissions in testing conditions.
	Metric 7:	Testing Consistency	N/A	Not applicable; multiple study groups were not reported.
	Metric 8:	System Type and Design	Medium	Some system design details were not provided; however, this was not likely to have influenced the interpretation of the results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	Microbial biomass not reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Basis for biodegradation not reported; very large range reported.
	Metric 12:	Test Substance Purity	Low	Sampling details were omitted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Insufficient detail; analytical method not reported; The target chemical concentrations, extraction efficiency, percent recovery, and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	No details; degradation kinetics not specified.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Insufficient data; Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Uninformative**

Study Citation:	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (<i>Lepomis macrochirus</i>). :379-392.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	18050

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	None; Experimental; other: Bioconcentration in Bluegill sunfish: Aquarium with well-water and modified continuous-flow proportional dilution apparatus for chemical introduction
Solvent, Reactivity, Storage, Stability	NR; NR; Stored in sealed vial under refrigerated conditions.; NR
Radiolabel, Source, State, Purity	Ring labelled C-14; New England Nuclear, Boston, Massachusetts.; NR; NR
Test Organism and Test Organism Details	Bluegill sunfish (<i>Lepomis macrochirus</i>) 100 per aquarium; 4 populations: 3 from CT farm-mean: wet weights 0.37±(0.18)g - 0.94(±0.34)g , lengths 23(±3)mm - 32(±4)mm; 1 NE-mean: wet weight 0.95(±0.36)g, length 35(±4)mm; acclimated for a minimum of 30 d, mortality less than 3%, healthy prior to use
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 16±1°C (mean); Measured daily; Initial: 7.1 (measured periodically, range 6.3-7.9); 7 days
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Initial=>60% of saturation (5.6 mg/L) (measured periodically range 5.9-8.6 mg/L 57-89% sat); Not reported; 35 mg/L as calcium carbonate
Exposure Route, Elimination, and Nominal Measurements	500mL of diluent well water was mixed with stock solution.; t1/2 <1 day; following the apparent equilibrium or 28 d exposure period fish were transferred to pollutant free aquarium; sample days 1, 2, 4, 7; Measured
Test Type, Test Temperature, and Test Condition	flow-through; 16±1°C (mean); Measured daily; Control aquarium which received only well water
Comments	
Duration, Parameter, and Sampling Frequency	14 days; Test: 28 days or until equilibrium; water and fish samples collected periodically until apparent equilibrium was reached or the max exposure of 28 days was reached; DT50; Days 0, 1, 2, 4, 7, 10, and 14.
Concentration	7.89±1.20 µg/L
Analytical Method and Analytical Details	Quantitation of radiolabeled residue using a Packard Model 306 Oxidizer and Model 2002 Packard Tri-Carb Liquid Scintillation Spectrometer; samples collected and prepared according to US EPA.;
Rate Constant and Results per Recovery	Half-life <1 day; half-life defined as the period of time required for the mean chemical residue measured in fish at equilibrium to be reduced by half during depuration; Oxidizer: 99-100% recovery; Counting efficiencies: 7.9% counting error at 95% confidence level, decreased as sample activity increased
Statistics, Basis, and Calculation Basis	Not Reported; whole body w.w.; steady state
Results Value and Results Details	BCF: 89; BCF is the quotient of the mean measured residues of the compound in whole body fish tissue during the equilibrium period divided by the mean measured concentration of the compound in exposure water.
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; NA (control aquarium used but not discussed other than its use as a baseline)

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1: Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2: Test Substance Purity	Medium	The purity of the test substance was not reported; however, the omission is unlikely to have a substantial impact on the study results.

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Study Citation:	Barrows, M. E., Petrocelli, S. R., Macek, K. J., Carroll, J. J. (1980). Bioconcentration and elimination of selected water pollutants by bluegill sunfish (<i>Lepomis macrochirus</i>). :379-392.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	18050			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 2: Test Design	Metric 3:	Study Controls	High	Control aquaria were used without the introduction of the test substance.
	Metric 4:	Test Substance Stability	High	The test substance storage and preparation were reported and appropriate.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The samples were kept in the same aquarium and subject to the same treatment and conditions.
	Metric 8:	System Type and Design	High	Equilibrium was reported and the system type was appropriate.
Domain 4: Test Organisms	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was described and appropriate for the study type.
Domain 5: Outcome Assessment	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control	Metric 13:	Confounding Variables	High	Uncertainty in the concentration measurements were reported and unlikely to impact the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No adverse health outcomes were reported among the test organisms.
Domain 7: Data Presentation and Analysis	Metric 15:	Data Reporting	Medium	Lipid content and test substance recovery in fish tissue were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study results.

Overall Quality Determination**High**

* Related References: Cited in ECHA

Study Citation:	Cassery, D. M., Davis, E. M., Downs, T. D., Guthrie, R. K. (1983). Sorption of organics by <i>Selenastrum capricornutum</i> . Water Research 17(11):1591-1594.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1333375

EXTRACTION				
Parameter		Data		
CASRN and Test Material		95-50-1; 1,2-Dichlorobenzene		
Confidentiality, Type, and Guideline		None; Experimental; other: BCF study of eight organics in green algae, Selenastrum capricornutum.		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; NR; NR; NR Notes: NR		
Test Organism and Test Organism Details		Selenastrum capricornutum; Green algae from National Eutrophication Research Program, USEPA, Corvallis, OR. Algae culture contained one bacteria type that could not be removed.		
Lipid Content, Test Temperature, pH, and Depuration Time		Not reported; Not reported; Not reported; Not reported		
Media Type, TOC, and Salinity		other; Not reported; Not reported		
Dissolved Oxygen, Conductivity, and Hardness		Not reported; Not reported; Not reported		
Exposure Route, Elimination, and Nominal Measurements		S. capricornutum cultured in Modified Bold’s basal Medium with TRIS buffer to which 1,2-DCB was added.; Not reported; Individual 1,2-DCB test: 10.0mg/L; simultaneous test with 7 other organics: 2.0 mg/L.		
Test Type, Test Temperature, and Test Condition		semi-static; Not reported; Magnetic stirrer kept algae suspended. Algal biomass (Total suspended solids): 19.0 and 10.2 mg/L in 1,2-DCB-only and multiple chemical test, respectively.		
Comments				
Duration, Parameter, and Sampling Frequency		24 hours; other; Samples were taken in the control (no alga) and experimental flasks at t=0 and t=24 hours. Two replicates performed for each experiment.		
Concentration		2.0 - 10.0 mg/L		
Analytical Method and Analytical Details		GC-FID (Perkin-Elmer 910 GC); Detection limit was between 0.05-0.5mg/L.;		
Rate Constant and Results per Recovery		Not reported; Not reported		
Statistics, Basis, and Calculation Basis		Not reported; Not Reported; Not Reported		
Results Value and Results Details		BCF; Test with 1,2-DCB only: 19,700 (Log BCF=4.29); test with seven other organics: 10,080 (Log BCF=4.00)		
Metabolites, Reference, and Results Reference Substance		Not reported; Not reported; Not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported but the omission was unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used in the study.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test substance were not reported but the omissions were unlikely to impact the study results.

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Study Citation:	Casserly, D. M., Davis, E. M., Downs, T. D., Guthrie, R. K. (1983). Sorption of organics by <i>Selenastrum capricornutum</i> . Water Research 17(11):1591-1594.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	1333375			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and was tested below its solubility in the medium.
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were not reported but the omissions were unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	There were no differences reported between the study groups that impact the study results.
	Metric 8:	System Type and Design	Medium	It is not clear that equilibrium was established between the test organism and the media but the omission is unlikely to have a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was appropriate for the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling frequency was too low to determine uptake rates.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainties in the measurements were not reported but due to the replication of samples and multiple analyses, the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the organism type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Concentrations were not directly reported, but the omission does not have a substantial impact on the reported BCF calculations.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not reported but the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**High**

* Related References: Cited in HSDB and ECHA

Study Citation:	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge <i>Chironomus decorus</i> . <i>Ecotoxicology and Environmental Safety</i> 15(2):226-241.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1992457

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	None; Experimental; other: Bioavailability of sediment-sorbed organic contaminants
Solvent, Reactivity, Storage, Stability	distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	Yes, uniformly ring-labeled ¹⁴ C standards from Pathfinder Laboratories, Inc. St. Louis MO, 98% radiopure; final specific activity: 1 µCi/L; Aldrich Chemical Co. (Milwaukee, WI); NR; NR
Test Organism and Test Organism Details	Midge fly larvae, <i>Chironomus decorus</i> ; 20 - Fourth-instar larvae used, head capsule 0.40-0.45 mm, body 6.2-16.5 mm, average wt 3.60±1.24 mg; obtained from Dr. Allen Knight (University of California, Davis)
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 7.9±0.1 (pH 4.4, sediment); Not reported
Media Type, TOC, and Salinity	natural water / sediment: freshwater; OC - 14.5% organic matter; 51% sand, 47% silt, 2% clay; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; CEC 38 mEq/100 g; Not reported
Exposure Route, Elimination, and Nominal Measurements	exposure via contaminated sediments, flow-through with (equilibrium) and without (non-equilibrium) test chemical performed; Erlenmeyer flask with simulated lake water; Not reported; Measured
Test Type, Test Temperature, and Test Condition	flow-through; Not reported; closed exposure chambers with air-tight delivery system to prevent loss via volatilization, toxicant delivery flow-rate 0.52 ml/hr, water flow rate 90.0 ml/hr; sediment: Sherman Island Lake, Sacramento-San Joaquin River Delta, CA
Comments	48 hours; other; Not reported
Duration, Parameter, and Sampling Frequency	Not Reported
Concentration	liquid scintillation counting with a Packard Tri-Carb liquid scintillation counter (Model 4530); Comparative analysis by oxidation of the larvae; Not reported; Not reported
Analytical Method and Analytical Details	standard deviations reported; not specified; steady state
Rate Constant and Results per Recovery	equilibrium conditions: 0.22±0.04 (sediment); 31±5 (overlying water); 29±5 (interstitial water); non-equilibrium conditions: 0.23±0.07 (sediment); 49±10 (overlying water); 29±5 (interstitial water); BCF determined by dividing tissue concentration by concentrations in sediment, overlying water and interstitial water
Statistics, Basis, and Calculation Basis	Not reported; Not reported; Not reported
Results Value and Results Details	
Metabolites, Reference, and Results Reference Substance	

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Adsorption to test tube controls were used. Concurrent negative controls were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:		Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge Chironomus decorus. Ecotoxicology and Environmental Safety 15(2):226-241.		
OECD Harmonized Template:		Aquatic Bioconcentration		
HERO ID:		1992457		
Domain	Metric	EVALUATION		Comments
		Rating		
	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	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details omitted; the mass balance, percent recovery and MDL not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however, negative controls were not included.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge <i>Chironomus decorus</i> . <i>Ecotoxicology and Environmental Safety</i> 15(2):226-241.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	1992457			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, and Guideline	None; Experimental; other: Bioavailability of sediment-sorbed organic contaminants			
Solvent, Reactivity, Storage, Stability	distilled water; NR; NR; NR			
Radiolabel, Source, State, Purity	Yes, uniformly ring-labeled 14C standards from Pathfinder Laboratories, Inc. St. Louis MO, 98% radiopure; final specific activity: 1 µCi/L; Aldrich Chemical Co. (Milwaukee, WI); NR; NR			
Test Organism and Test Organism Details	Midge fly larvae, <i>Chironomus decorus</i> ; 20 - Fourth-instar larvae used, head capsule 0.40-0.45 mm, body 6.2-16.5 mm, average wt 3.60±1.24 mg; obtained from Dr. Allen Knight (University of California, Davis)			
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; 7.9±0.1 (pH 4.4, sediment); Not reported			
Media Type, TOC, and Salinity	natural water / sediment: freshwater; OC - 3.6% organic matter, OC content obtained after processing of original sediment; 51% sand, 47% silt, 2% clay; Not reported			
Dissolved Oxygen, Conductivity, and Hardness	Not reported; CEC 38 mEq/100 g; Not reported			
Exposure Route, Elimination, and Nominal Measurements	exposure via contaminated sediments, flow-through with (equilibrium) and without (non-equilibrium) test chemical performed; Erlenmeyer flask with simulated lake water; Not reported; Measured			
Test Type, Test Temperature, and Test Condition Comments	flow-through; Not reported; closed exposure chambers with air-tight delivery system to prevent loss via volatilization, toxicant delivery flow-rate 0.52 ml/hr, water flow rate 90.0 ml/hr; sediment: Sherman Island Lake, Sacramento-San Joaquin River Delta, CA			
Duration, Parameter, and Sampling Frequency	48 hours; other; Not reported			
Concentration	Not Reported			
Analytical Method and Analytical Details	liquid scintillation counting with a Packard Tri-Carb liquid scintillation counter (Model 4530); Comparative analysis by oxidation of the larvae;			
Rate Constant and Results per Recovery	Not reported; Not reported			
Statistics, Basis, and Calculation Basis	standard deviations reported; not specified; steady state			
Results Value and Results Details	non-equilibrium conditions: 1.08±0.53 (sediment); 1071±881 (overlying water); 319±18 (interstitial water); BCF determined by dividing tissue concentration by concentrations in sediment, overlying water and interstitial water			
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Adsorption to test tube controls were used. Concurrent negative controls were not included; however, the lack of data was not likely to have a substantial impact on study results.
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Study Citation:	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge Chironomus decorus. Ecotoxicology and Environmental Safety 15(2):226-241.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	1992457			
Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details omitted; the mass balance, percent recovery and MDL not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however, negative controls were not included.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2048335

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Ring-labeled 14-C 1,2-DCB (Pathfinder Laboratories Inc., St. Louis, MO) >98% radiochemical purity.; Aldrich Chemical Co. (Milwaukee, WI); NR; NR
Test Organism and Test Organism Details	Midge fly larvae (Chironomus decorus); Midges were chosen that were at the final stage of larvae development. Mean body weight: 3.60±1.24 mg
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20°C; 4.4; Not reported
Media Type, TOC, and Salinity	natural water / sediment: freshwater; Organic matter/sand/silt/clay (%): 14.5/51/47/2. "Low-organic matter" sediment with OC content of 3.6% was also tested.; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Overlying water, interstitial water, and sediment exposures were all tested.; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	flow-through; 20°C; Flow rate of 30.0mL/h was maintained. Sediment was collected from San Joaquin River Delta near Rio Vista, CA.
Duration, Parameter, and Sampling Frequency	48 hours; Not Reported; 1 time
Concentration	Not Reported
Analytical Method and Analytical Details	Liquid scintillation counting; Packard Tri-Carb liquid scintillation counter (Model 4530). Concentrations were corrected for tube wall sorption and background radioactivity.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	BCF in high organic sediment: 0.22 (0.04); BCF in overlying water: 31 (5); BCF in interstitial water: 29 (5). In low organic sediment;; BCFs in high organic sediment were lower than those calculated in the low organic sediment.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance radiochemical purity was reported and appropriate.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls were done without sediment to determine test compound sorption to tube walls.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.

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Study Citation:	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	2048335			
Domain		EVALUATION		Comments
	Metric	Rating		
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	Any changes to the test conditions were reported and intentional.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organism was described and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Standard deviations were reported in the final results and were acceptable.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition were observed.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Lipid normalized BCFs were not reported which may prevent meaningful interpretation of the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	No significant statistical analysis was reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Oliver, B. G., Niimi, A. J. (1983). Bioconcentration of chlorobenzenes from water by rainbow trout: correlations with partition coefficients and environmental residues. Environmental Science & Technology 17(5):287-291.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	4159607

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation in fish
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co.; NR; NR
Test Organism and Test Organism Details	Rainbow trout; n=32, average initial weight 250 g
Lipid Content, Test Temperature, pH, and Depuration Time	8.1±1.7% (8d), 8.4±0.8% (39d), 8.7±2.5% (69d), 8.3±3.3% (99d), 8.2±1.9% (119 d); 15±1°C; Not reported; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Measured low exposure: 47 ±17 ng/L
Test Type, Test Temperature, and Test Condition	flow-through; 15±1°C; Test substance mixture of chlorobenzenes pumped continuously at 1 mL/min; solutions replaced every 2 days; BCFs control corrected.
Comments	119 days; Not Reported; 10, 34, 63, 119 days (control), 8, 39, 69, 99, and 119 days (low exposure)
Duration, Parameter, and Sampling Frequency	47 ng/L
Concentration	Capillary gas chromatography and electron capture detectors; Digestive tract removed and whole fish homogenized, ground with Na ₂ SO ₄ , Soxhlet extracted with acetone/hexane, condensed, cleaned up on Florisil column; water extracted with pentane, concentrated, and cleaned up with Na ₂ SO ₄ /Florisil column;
Analytical Method and Analytical Details	Not applicable; 80 - 92% (range reported for studied chlorobenzenes)
Rate Constant and Results per Recovery	log BCF=-0.869 + (0.997±0.056)log K (r ² =0.986); Whole body, wet wt.; steady state
Statistics, Basis, and Calculation Basis	BCF=270±21; Fish concentrations (ng/g): 14±2.3 / 8d, 11±2.3 / 39d, 12±3.8 / 69d, 12±2.9 / 99d, 14±1.8 / 119d; BCF=260, 250, 250, 270, and 300, respectively
Results Value and Results Details	Not reported; Controls exposed to distilled water in methanol (9±6 ng/L test substance); ND - 5.9±1.2 ng/g fish
Metabolites, Reference, and Results Reference Substance	

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls were included and the results were reported; study results were control-corrected.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and test system concentrations were verified weekly.

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Study Citation:	Oliver, B. G., Niimi, A. J. (1983). Bioconcentration of chlorobenzenes from water by rainbow trout: correlations with partition coefficients and environmental residues. Environmental Science & Technology 17(5):287-291.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	4159607			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Many testing conditions were omitted.
	Metric 7:	Testing Consistency	High	Test system set up was consistent across samples and study groups.
	Metric 8:	System Type and Design	High	The flow through system was capable of achieving equilibrium and maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species, source, and initial weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioconcentration.
	Metric 12:	Test Substance Purity	High	Sampling was conducted at an appropriate frequency and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The test substance was a mixture of chlorobenzenes, effects this may have on bioaccumulation compared to the pure substance cannot be determined.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No significant changes in organism health or attrition compared to controls were observed.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, recovery was reported but the limits of detection were not. Lipid content was reported and lipid normalized BCFs can be determined by multiplying the BCF by 12 since the mean lipid content of the fish was 8.5%.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Relationship to log Kow was described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method, comparable to previously published values, and supported known relationships to log Kow.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

* Related References: HSDB

Study Citation:	Oliver, B. G., Niimi, A. J. (1983). Bioconcentration of chlorobenzenes from water by rainbow trout: correlations with partition coefficients and environmental residues. Environmental Science & Technology 17(5):287-291.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	4159607

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation in fish
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co.; NR; NR
Test Organism and Test Organism Details	Rainbow trout; n=32, average initial weight 250 g
Lipid Content, Test Temperature, pH, and Depuration Time	7.2±1.5% (7d), 8.0±1.3% (22d), 9.4±2.9% (43d), 10.7±1.3% (63d), 8.7±1.2% (105d); 15±1°C; Not reported; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Measured low exposure: 940 ±160 ng/L
Test Type, Test Temperature, and Test Condition	flow-through; 15±1°C; Test substance mixture of chlorobenzenes pumped continuously at 1 mL/min; solutions replaced every 2 days; BCFs control corrected.
Comments	
Duration, Parameter, and Sampling Frequency	105 days; Not Reported; 10, 34, 63, 119 days (control), 7, 22, 43, 63, and 105 days (high exposure)
Concentration	3 - 940 ng/L
Analytical Method and Analytical Details	Capillary gas chromatography and electron capture detectors; Digestive tract removed and whole fish homogenized, ground with Na ₂ SO ₄ , Soxhlet extracted with acetone/hexane, condensed, cleaned up on Florisil column; water extracted with pentane, concentrated, and cleaned up with Na ₂ SO ₄ /Florisil column;
Rate Constant and Results per Recovery	Not applicable; 80 - 92% (range reported for studied chlorobenzenes)
Statistics, Basis, and Calculation Basis	log BCF=-0.632 + (1.022±0.057)log K (r ² =0.986); Whole body, wet wt.; steady state
Results Value and Results Details	BCF=560±130; Fish concentrations (ng/g): 390±66 / 7d, 360±67 / 22d, 630±190 / 43d, 470±100 / 63d, 670±99 / 105d; BCF=500, 400, 680, 500, and 710, respectively
Metabolites, Reference, and Results Reference Substance	Not reported; Controls exposed to distilled water in methanol (9±6 ng/L test substance); ND - 5.9±1.2 ng/g fish

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls were included and the results were reported; study results were control-corrected.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and test system concentrations were verified weekly.
Domain 3: Test Conditions				

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Study Citation:	Oliver, B. G., Niimi, A. J. (1983). Bioconcentration of chlorobenzenes from water by rainbow trout: correlations with partition coefficients and environmental residues. Environmental Science & Technology 17(5):287-291.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	4159607			
Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Many testing conditions were omitted.
	Metric 7:	Testing Consistency	High	Test system set up was consistent across samples and study groups.
	Metric 8:	System Type and Design	High	The flow through system was capable of achieving equilibrium and maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism species, source, and initial weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioconcentration.
	Metric 12:	Test Substance Purity	High	Sampling was conducted at an appropriate frequency and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The test substance was a mixture of chlorobenzenes, effects this may have on bioaccumulation compared to the pure substance cannot be determined.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No significant changes in organism health or attrition compared to controls were observed.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, recovery was reported but the limits of detection were not. Lipid content was reported and lipid normalized BCFs can be determined by multiplying the BCF by 12 since the mean lipid content of the fish was 8.5%.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Relationship to log Kow was described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method, comparable to previously published values, and supported known relationships to log Kow.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: HSDB

Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	660424

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	none; not specified; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	trout; not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Media Type, TOC, and Salinity	not reported; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	not reported; not reported; not reported
Test Type, Test Temperature, and Test Condition	static; not reported; not reported
Comments	
Duration, Parameter, and Sampling Frequency	not reported; not reported; not reported
Concentration	not reported -
Analytical Method and Analytical Details	not reported; not reported;
Rate Constant and Results per Recovery	not reported; not reported
Statistics, Basis, and Calculation Basis	not reported; not reported; not reported
Results Value and Results Details	BCF = 750; note in source: data derived from references cited (4 sources indicated)
Metabolites, Reference, and Results Reference Substance	not reported; not reported; not reported

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

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Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	660424			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 7:	Testing Consistency	Low	Details were not reported in this secondary source.
	Metric 8:	System Type and Design	Medium	Details were not reported in this secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	Low	Details were not reported in this secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details were not reported in this secondary source.
	Metric 12:	Test Substance Purity	Low	Details were not reported in this secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details were not reported in this secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	Details were not reported in this secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details were not reported in this secondary source; value is reported to be derived from the sources cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details were not reported in this secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Quality Determination		Low		

* Related References: Four sources cited to value: (data not in distiller)HERO ID: 8112Handbook of environmental data on organic chemicalsAuthor: Verschueren, K (1983) (2nd ed). New York, NY: Van Nostrand Reinhold Company. HERO ID: 7417Relationship between water solubility, soil sorption, octanol-water partitioning, and concentration of chemicals in biotaAuthors: Kenaga, EE; Goring, CAI (1980) American Society for Testing and Materials 78-115HERO ID: 3828850Correlation of bioconcentration factors of chemicals in aquatic and terrestrial organisms with their physical and chemical propertiesAuthor: Kenaga, EE (1980) Environmental Science and Technology 14:553-556. HERO ID: 18737Partition coefficient to measure bioconcentration potential of organic chemicals in fishAuthors: Neely, WB; Branson, DR; Blau, GE (1974) Environmental Science and Technology 8:1113-1115.

Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	660424			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene			
Confidentiality, Type, and Guideline	none; not specified; other: not specified			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Test Organism and Test Organism Details	fish; not reported			
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported			
Media Type, TOC, and Salinity	not reported; not reported; not reported			
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported			
Exposure Route, Elimination, and Nominal Measurements	not reported; not reported; not reported			
Test Type, Test Temperature, and Test Condition	flow-through; not reported; not reported			
Comments				
Duration, Parameter, and Sampling Frequency	not reported; not reported; not reported			
Concentration	not reported -			
Analytical Method and Analytical Details	not reported; not reported;			
Rate Constant and Results per Recovery	not reported; not reported			
Statistics, Basis, and Calculation Basis	not reported; not reported; not reported			
Results Value and Results Details	BCF = 90; note in source: data derived from references cited (4 sources indicated)			
Metabolites, Reference, and Results Reference Substance	not reported; not reported; not reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported in this secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported in this secondary source.
	Metric 4:	Test Substance Stability	Medium	Details were not reported in this secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Details were not reported in this secondary source.
	Metric 6:	Testing Conditions	Low	Details were not reported in this secondary source.
	Metric 7:	Testing Consistency	Low	Details were not reported in this secondary source.
	Metric 8:	System Type and Design	Medium	Details were not reported in this secondary source.
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Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	660424			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	Low	Details were not reported in this secondary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details were not reported in this secondary source.
	Metric 12:	Test Substance Purity	Low	Details were not reported in this secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details were not reported in this secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	Details were not reported in this secondary source.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details were not reported in this secondary source; value is reported to be derived from the sources cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details were not reported in this secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination**Low**

* Related References: Four sources cited to value: (data not in distiller)HERO ID: 8112Handbook of environmental data on organic chemicalsAuthor: Verschueren, K (1983) (2nd ed). New York, NY: Van Nostrand Reinhold Company. HERO ID: 7417Relationship between water solubility, soil sorption, octanol-water partitioning, and concentration of chemicals in biotaAuthors: Kenaga, EE; Goring, CAI (1980) American Society for Testing and Materials 78-115HERO ID: 3828850Correlation of bioconcentration factors of chemicals in aquatic and terrestrial organisms with their physical and chemical propertiesAuthor: Kenaga, EE (1980) Environmental Science and Technology 14:553-556. HERO ID: 18737Partition coefficient to measure bioconcentration potential of organic chemicals in fishAuthors: Neely, WB; Branson, DR; Blau, GE (1974) Environmental Science and Technology 8:1113-1115.

Study Citation:	Sum, D. T. H., M. Schipper, M., Opperhuizen, A. (1993). Toxicokinetics of halogenated benzenes in fish: Lethal body burden as a toxicological end point. Environmental Toxicology and Chemistry 12(6):1117-1127.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	654569

EXTRACTION				
Parameter		Data		
CASRN and Test Material		95-50-1; 1,2-Dichlorobenzene		
Confidentiality, Type, and Guideline		None; Experimental; other: OECD guidelines for testing of chemicals, water solubility. Test guidelines 203		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		No; British Drug Houses Ltd. (Poole, England); NR; 95% Notes: 1,2-diCBz		
Test Organism and Test Organism Details		guppies (Poecilia reticulata); 3 months old, average weight of 0.18±0.05 g, average length of 2.6±0.3 cm.		
Lipid Content, Test Temperature, pH, and Depuration Time		measured, not reported; measured, not reported, did not change more than one degree; measured, not reported, did not change more than one unit; up to 4 days		
Media Type, TOC, and Salinity		other; Not reported; Not reported		
Dissolved Oxygen, Conductivity, and Hardness		2.7-9.1 mg/L; Not reported; Not reported		
Exposure Route, Elimination, and Nominal Measurements		whole fish; Not reported; Measured		
Test Type, Test Temperature, and Test Condition		semi-static; measured, not reported, did not change more than one degree; Fish (n=8-16) exposed in 12 L test vessel		
Comments				
Duration, Parameter, and Sampling Frequency		Not reported; log KL (L/kg fat; lipid-normalized bioconcentration factor = Kc/lipid fraction); 5, 10 or 30 minute intervals.		
Concentration		1.5 - 54 µmol/L		
Analytical Method and Analytical Details		Carlo Ebra 5360 Mega Series GC with spit/spitless injector and electron-capture detector (63 Ni-ECD).; Fish homogenized in a mortar, extracted under reflux with 1:1 water hexane. Water samples extracted with 2,2,4-trimethylpentane. Test chemical extracted in hexane and analyzed by GC-ECD; Extractable fat content determined gravimetrically.;		
Rate Constant and Results per Recovery		870 L/kg/day (uptake); 3.9 /d (elimination); Extraction efficiencies were >90% in fish and water samples.		
Statistics, Basis, and Calculation Basis		±0.1 (p<0.05); lipid weight; steady state		
Results Value and Results Details		3.5; log Kc (L/kg; steady state bioconcentration factor based on first-order uptake rate constant and first-order elimination rate constant) = 2.4±0.1		
Metabolites, Reference, and Results Reference Substance		Not reported; Not reported; Not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Sum, D. T. H.,M, Schipper, M., Opperhuizen, A. (1993). Toxicokinetics of halogenated benzenes in fish: Lethal body burden as a toxicological end point. Environmental Toxicology and Chemistry 12(6):1117-1127.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	654569			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	There were minor inconsistencies in test conditions across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported, including species or sex, age, and starting body weight.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The lipid-normalized bioconcentration factor (BCF) was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**High**

Study Citation:	Sum, D. T. H.,M, Schipper, M., Opperhuizen, A. (1993). Toxicokinetics of halogenated benzenes in fish: Lethal body burden as a toxicological end point. Environmental Toxicology and Chemistry 12(6):1117-1127.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	654569			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, and Guideline	None; Experimental; other: OECD guidelines for testing of chemicals, water solubility. Test guidelines 203			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	No; British Drug Houses Ltd. (Poole, England); NR; 95% Notes: 1,2-diCBz			
Test Organism and Test Organism Details	fathead minnows (Pimephales promelas); 3 months old, average weight of 0.39±0.12 g, average length of 3.6±0.4 cm.			
Lipid Content, Test Temperature, pH, and Depuration Time	measured, not reported; measured, not reported, did not change more than one degree; measured, not reported, did not change more than one unit; up to 4 days			
Media Type, TOC, and Salinity	other; Not reported; Not reported			
Dissolved Oxygen, Conductivity, and Hardness	5.8-9.4 mg/L; Not reported; Not reported			
Exposure Route, Elimination, and Nominal Measurements	whole fish; Not reported; Measured			
Test Type, Test Temperature, and Test Condition	semi-static; measured, not reported, did not change more than one degree; Fish (n=8-16) exposed in 12 L test vessel			
Comments				
Duration, Parameter, and Sampling Frequency	Not reported; Log KL (L/kg fat; lipid-normalized bioconcentration factor = Kc/lipid fraction); 5, 10 or 30 minute intervals.			
Concentration	0.56 - 54 µmol/L			
Analytical Method and Analytical Details	Carlo Ebra 5360 Mega Series GC with spit/spitless injector and electron-capture detector (63 Ni-ECD).; Fish homogenized in a mortar, extracted under reflux with 1:1 water hexane. Water samples extracted with 2,2,4-trimethylpentane. Test chemical extracted in hexane and analyzed by GC-ECD; Extractable fat content determined gravimetrically.;			
Rate Constant and Results per Recovery	635 L/kg/day (uptake); 1.4 /d (elimination); Extraction efficiencies were >90% in fish and water samples.			
Statistics, Basis, and Calculation Basis	p<0.05; lipid weight; steady state			
Results Value and Results Details	3.9; log Kc (L/kg; steady state bioconcentration factor based on first-order uptake rate constant and first-order elimination rate constant) = 2.7			
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
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Study Citation:	Sum, D. T. H.,M, Schipper, M., Opperhuizen, A. (1993). Toxicokinetics of halogenated benzenes in fish: Lethal body burden as a toxicological end point. Environmental Toxicology and Chemistry 12(6):1117-1127.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	654569			
Domain	Metric	EVALUATION		Comments
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	There were minor inconsistencies in test conditions across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported, including species or sex, age, and starting body weight.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The lipid-normalized bioconcentration factor (BCF) was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**High**

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene
Confidentiality, Type, and Guideline	no; experimental; OECD Guideline 305 (Bioconcentration: Flow-through Fish Test) - [before 2 Oct 2012]
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	carp; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	Not Reported; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition	Not Reported; Not Reported; Not Reported
Comments	
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	BCF = 90-260; Not Reported
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and the test substance purity was low or not reported (e.g., lack of information on hydration state of a compound introduces uncertainty into concentration calculations); however, the omissions or identified impurities were not likely to have a substantial impact on the study results.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5113349			
Domain		EVALUATION		Comments
		Metric	Rating	
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	Medium	Test organism information was not reported but expected to be appropriate. More details expected in the primary source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5113349

		EVALUATION		
Domain	Metric	Rating		Comments
Domain 8: Other	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination

Medium

* Related References: cited from NITE (2002) HERO ID: 3808978 Chemicals Inspection and Testing Institute. 2008. Biodegradation and Bioaccumulation of the Existing Chemical Substances under the Chemical Substances Control Law. Japan Chemical Industry Ecology - Toxicology and Information Center

Study Citation:	Wang, X. L., Ma, Y. J., Yu, W. J., Geyer, H. J. (1997). Two-compartment thermodynamic model for bioconcentration of hydrophobic organic chemicals by alga: Quantitative relationship between bioconcentration factor and surface area of marine algae or octanol/water partition coefficient. Chemosphere 35(8):1781-1797.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1982535

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	None; Calculation; other: Model bioconcentration factor in marine alga species using a two-compartment thermodynamic model
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Algae; Phaeodactylum tri. Bohlin; Nannochloropsis oculata; Chlorella marine; Platymonas subcordiformis; Pyramidomonas sp. obtained from Microbial Culture Laboratory, Ocean University of Qingdao, P.R. China
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 13±1C; Not reported; Not reported
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Not reported
Test Type, Test Temperature, and Test Condition	other; 13±1C; Model approach is based on bioconcentration viewed as a pure diffusion process of physicochemical partitioning into hydrophobic organisms; mathematical kinetics based on two-compartment model; kinetic uptake performed in batch exposures tetrachlorobenzene
Comments	
Duration, Parameter, and Sampling Frequency	72 hours; other; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not reported; Not Reported
Results Value and Results Details	BCF(toxic)=39; 71; 59; 191; and 249 for Phaeodactylum tri. Bohlin; Nannochloropsis oculata; Chlorella marine; Platymonas subcordiformis; Pyramidomonas sp., respectively; obtained from the acute toxicity test with the combined bioconcentration and probability model
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	N/A	Not reported; modeling study.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Wang, X. L., Ma, Y. J., Yu, W. J., Geyer, H. J. (1997). Two-compartment thermodynamic model for bioconcentration of hydrophobic organic chemicals by alga: Quantitative relationship between bioconcentration factor and surface area of marine algae or octanol/water partition coefficient. Chemosphere 35(8):1781-1797.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	1982535			
Domain		EVALUATION		
	Metric	Rating	Comments	
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	This metric met the criteria for medium confidence as expected for this type of study; non-standard, limited detail.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the study were not considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Wolf, S. D., Lassiter, R. R., Wooten, S. E. (1991). Predicting chemical accumulation in shoots of aquatic plants. Environmental Toxicology and Chemistry 10(5):665-680.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1998227

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, and Guideline	None; Experimental; other: Accumulation in shoots (leaves & stems) of aquatic plant species
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Co. (Milwaukee, WI); NR; >98% Notes: 1,2-DCB
Test Organism and Test Organism Details	Myriophyllum spicatum (n=20), Bacopa caroliniana (n=14), and Hydrilla verticillata (n=10); Plants species were collected from a variety of locations and seasons
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 17 or 20°C; Not reported; Not reported
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	static exposure in Erlenmeyer flasks; Not reported; Measured
Test Type, Test Temperature, and Test Condition	static; 17 or 20°C; steady-state reached between 1-3 days after initial exposure
Comments	
Duration, Parameter, and Sampling Frequency	3-21 days; other; Initial sampling, duplicate samples from 9-15 flasks periodically over the duration, end of exposure sampling
Concentration	70 mg/L
Analytical Method and Analytical Details	GC with ECD; Extraction via AOAC extraction procedure for multiresidue extraction from non-fatty foods; Analysis via GC with electron capture detector; MDL not reported;
Rate Constant and Results per Recovery	Not reported; Recoveries of DCB from plants (C.V.=0.24) and water (C.V.=0.22) and determination of wet weights (C.V.=0.07)
Statistics, Basis, and Calculation Basis	coefficients of variation (CV) ranged from 36-68%; part of the variation in measured results (33-40%) may be associated with respective recoveries; additional variation reflects expected variation in species composition.; not specified; steady state
Results Value and Results Details	Measured average BCF: M. spicatum=28 (range: 10-48, CV 36%), B. caroliniana=27 (range: 7-76, CV 68%), and H. verticillata=13 (range: 8-22, CV 42%); Steady state bioconcentration factor; predicted for shoots using biomass-weighted averages of organ partition coefficients
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported in this study.

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Study Citation:	Wolf, S. D., Lassiter, R. R., Wooten, S. E. (1991). Predicting chemical accumulation in shoots of aquatic plants. Environmental Toxicology and Chemistry 10(5):665-680.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	1998227			
Domain	Metric	EVALUATION Rating	Comments	
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (pH, water characterization, specific durations); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	There were inconsistencies in test species as a result from variable sampling times.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test species was reported but not routinely used for similar studies; species characteristics, source and specific collection details were not provided.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate for the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variation in the measurements and statistical techniques and between study groups were reported; the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Target chemical mass balance and lipid content or lipid normalized BCF were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Wolf, S. D., Lassiter, R. R., Wooten, S. E. (1991). Predicting chemical accumulation in shoots of aquatic plants. Environmental Toxicology and Chemistry 10(5):665-680.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	1998227

		EVALUATION	
Domain	Metric	Rating	Comments
Overall Quality Determination		Medium	

Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5257521

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, and Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	<0.01% methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR
Test Organism and Test Organism Details	Algae, Pyramimonaos sp.; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported
Media Type, TOC, and Salinity	not specified; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, bioavailable concentration
Test Type, Test Temperature, and Test Condition	static; 20±1°C; 12:12 h LD cycle
Comments	
Duration, Parameter, and Sampling Frequency	3 days; Not Reported; Not reported
Concentration	5.00 - 20.0 mg/L
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Uptake: 20.1±6.0; Elimination: 0.065±0.020; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Dry weight; kinetic
Results Value and Results Details	BCF: 249±21; BCF can be obtained by fitting the experimental data for percent growth inhibition-time at any bioavailable concentration with a non-linear regression procedure
Metabolites, Reference, and Results Reference Substance	Not reported; Blank and methanol control groups; Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	N/A
Domain 2: Test Design	Metric 3:	Study Controls	High
	Metric 4:	Test Substance Stability	High
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High

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Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Very few water and organism parameters were reported.
	Metric 7:	Testing Consistency	High	The conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and test vessels were capped to prevent volatile losses of the test substance.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism was identified and is used for similar study types; growth was monitored.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited information on sampling methods was reported for the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques accounted for variation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition or unexplained health outcomes were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods used were not reported, lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, and Guideline	None; Experimental; other: Guideline not specified			
Solvent, Reactivity, Storage, Stability	<0.01% methanol; NR; NR; NR			
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR			
Test Organism and Test Organism Details	Algae, Platymonas sub.; Not reported			
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported			
Media Type, TOC, and Salinity	not specified; Not reported; Not reported			
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported			
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, bioavailable concentration			
Test Type, Test Temperature, and Test Condition	static; 20±1°C; 12:12 h LD cycle			
Comments				
Duration, Parameter, and Sampling Frequency	3 days; Not Reported; Not reported			
Concentration	5.00 - 20.0 mg/L			
Analytical Method and Analytical Details	Not reported; Not reported;			
Rate Constant and Results per Recovery	Uptake: 14.7±2.6; Elimination: 0.059±0.010; Not reported			
Statistics, Basis, and Calculation Basis	Not reported; Dry weight; kinetic			
Results Value and Results Details	BCF: 191±33; BCF can be obtained by fitting the experimental data for percent growth inhibition-time at any bioavailable concentration with a non-linear regression procedure			
Metabolites, Reference, and Results Reference Substance	Not reported; Blank and methanol control groups; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank and vehicle controls were included and assumed to test valid.
	Metric 4:	Test Substance Stability	High	The preparation of the test substance was described and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Very few water and organism parameters were reported.
	Metric 7:	Testing Consistency	High	The conditions were consistent across study groups.
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Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established and test vessels were capped to prevent volatile losses of the test substance.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism was identified and is used for similar study types; growth was monitored.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited information on sampling methods was reported for the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques accounted for variation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition or unexplained health outcomes were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods used were not reported, lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5257521

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, and Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	<0.01% methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR
Test Organism and Test Organism Details	Algae, Nannochloris oculata; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported
Media Type, TOC, and Salinity	not specified; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, bioavailable concentration
Test Type, Test Temperature, and Test Condition	static; 20±1°C; 12:12 h LD cycle
Comments	
Duration, Parameter, and Sampling Frequency	3 days; Not Reported; Not reported
Concentration	5.00 - 20.0 mg/L
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Uptake: 5.16±1.11; Elimination: 0.054±0.028; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Dry weight; kinetic
Results Value and Results Details	BCF: 71.2±14.9; BCF can be obtained by fitting the experimental data for percent growth inhibition-time at any bioavailable concentration with a non-linear regression procedure
Metabolites, Reference, and Results Reference Substance	Not reported; Blank and methanol control groups; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Blank and vehicle controls were included and assumed to test valid.
	Metric 4:	Test Substance Stability	High	The preparation of the test substance was described and appropriate for the study.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Very few water and organism parameters were reported.
	Metric 7:	Testing Consistency	High	The conditions were consistent across study groups.

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Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established and test vessels were capped to prevent volatile losses of the test substance.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism was identified and is used for similar study types; growth was monitored.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited information on sampling methods was reported for the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques accounted for variation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition or unexplained health outcomes were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods used were not reported, lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, and Guideline	None; Experimental; other: Guideline not specified			
Solvent, Reactivity, Storage, Stability	<0.01% methanol; NR; NR; NR			
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR			
Test Organism and Test Organism Details	Algae, Chlorella marine; Not reported			
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported			
Media Type, TOC, and Salinity	not specified; Not reported; Not reported			
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported			
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, bioavailable concentration			
Test Type, Test Temperature, and Test Condition	static; 20±1°C; 12:12 h LD cycle			
Comments				
Duration, Parameter, and Sampling Frequency	3 days; Not Reported; Not reported			
Concentration	5.00 - 20.0 mg/L			
Analytical Method and Analytical Details	Not reported; Not reported;			
Rate Constant and Results per Recovery	Uptake: 3.37±1.69; Elimination: 0.029±0.004; Not reported			
Statistics, Basis, and Calculation Basis	Not reported; Dry weight; kinetic			
Results Value and Results Details	BCF: 59.0±18.7; BCF can be obtained by fitting the experimental data for percent growth inhibition-time at any bioavailable concentration with a non-linear regression procedure			
Metabolites, Reference, and Results Reference Substance	Not reported; Blank and methanol control groups; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank and vehicle controls were included and assumed to test valid.
	Metric 4:	Test Substance Stability	High	The preparation of the test substance was described and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Very few water and organism parameters were reported.
	Metric 7:	Testing Consistency	High	The conditions were consistent across study groups.
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Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established and test vessels were capped to prevent volatile losses of the test substance.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism was identified and is used for similar study types; growth was monitored.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited information on sampling methods was reported for the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques accounted for variation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition or unexplained health outcomes were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods used were not reported, lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, and Guideline	None; Experimental; other: Guideline not specified			
Solvent, Reactivity, Storage, Stability	<0.01% methanol; NR; NR; NR			
Radiolabel, Source, State, Purity	NA; NR; Liquid; NR			
Test Organism and Test Organism Details	Algae, Phaeodactylum tri.; Not reported			
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±1°C; Not reported; Not reported			
Media Type, TOC, and Salinity	not specified; Not reported; Not reported			
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported			
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, bioavailable concentration			
Test Type, Test Temperature, and Test Condition	static; 20±1°C; 12:12 h LD cycle			
Comments				
Duration, Parameter, and Sampling Frequency	3 days; Not Reported; Not reported			
Concentration	5.00 - 20.0 mg/L			
Analytical Method and Analytical Details	Not reported; Not reported;			
Rate Constant and Results per Recovery	Uptake: 2.85±0.46; Elimination: 0.051±0.015; Not reported			
Statistics, Basis, and Calculation Basis	Not reported; Dry weight; kinetic			
Results Value and Results Details	BCF: 39.0±6.7; BCF can be obtained by fitting the experimental data for percent growth inhibition-time at any bioavailable concentration with a non-linear regression procedure			
Metabolites, Reference, and Results Reference Substance	Not reported; Blank and methanol control groups; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank and vehicle controls were included and assumed to test valid.
	Metric 4:	Test Substance Stability	High	The preparation of the test substance was described and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Very few water and organism parameters were reported.
	Metric 7:	Testing Consistency	High	The conditions were consistent across study groups.
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Study Citation:	Xiulin, W., Baotian, S., Ming, G. E., Lei, Z., Chenjian, Z., Xiurong, H. (2002). A model describing the time course and variability in toxicity of hydrophobic chemicals to aquatic organisms. Journal of Ocean University of Qingdao 1(1):71-79.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	5257521			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 8:	System Type and Design	High	Equilibrium was established and test vessels were capped to prevent volatile losses of the test substance.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism was identified and is used for similar study types; growth was monitored.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Limited information on sampling methods was reported for the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques accounted for variation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism attrition or unexplained health outcomes were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods used were not reported, lipid content was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Zhang, S., Lin, D., Wu, F. (2016). The effect of natural organic matter on bioaccumulation and toxicity of chlorobenzenes to green algae. Journal of Hazardous Materials 311:186-193.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3607057

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, and Guideline	None; Experimental; other: Concentration factor determination for green algae
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: May be reported in supplemental information
Test Organism and Test Organism Details	Green algae, Chlorella pyrenoidosa; Initial density 2E7 cells/mL
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 25±0.5°C; Not reported; Not reported
Media Type, TOC, and Salinity	not specified; NR; 4.56 mg/L (without and with SRNOM); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Nominal, supplemental test substance added every day
Test Type, Test Temperature, and Test Condition Comments	semi-static; 25±0.5°C; Sealed-dark or open-illuminated test systems, in the presence or absence of 10 mg/L Suwannee River NOM (SRNOM). Light: 100± 5 uE/m ² s 14 h day
Duration, Parameter, and Sampling Frequency	96 hours; Not Reported; 4, 8, 12, 24, 48, and 96 h
Concentration	1.5 mg/L
Analytical Method and Analytical Details	Agilent 7693 GC; Algal suspensions separated by centrifuge; cells extracted by sonication with n-hexane, supernatant (background media) extracted 2x by same method, both dehydrated with anhydrous sodium sulfate, eluted 2x with n-hexane;
Rate Constant and Results per Recovery	Not Reported; 87.2-121% (algal cells), 94.2-99.0% (supernatant)
Statistics, Basis, and Calculation Basis	Conducted in triplicate; independent samples t-test, statistical significance p < 0.05; Whole cell, dry wt.; steady state
Results Value and Results Details	Concentration factor: Approx. 45, 45, 45, 210, 215, 155 mL/mg (without SRNOM), 45, 50, 75, 230, 240, 220 mL/mg (with SRNOM); Reported at 4, 8, 12, 24, 48, and 96 h. Open-illuminated bioaccumulation at 96 h decreased by 84.8±1.8% (without SRNOM), 77.6±1.3% (with SRNOM) compared to sealed-dark systems at 4h.
Metabolites, Reference, and Results Reference Substance	Not applicable; Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Test substance source and purity were not reported, may be included in supplemental information.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls were included, the results were not reported but were assumed to respond within an acceptable range.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation not reported, exposure concentrations reported.

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Study Citation:	Zhang, S., Lin, D., Wu, F. (2016). The effect of natural organic matter on bioaccumulation and toxicity of chlorobenzenes to green algae. Journal of Hazardous Materials 311:186-193.			
OECD Harmonized Template:	Aquatic Bioconcentration			
HERO ID:	3607057			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance, concentrations were below observed toxicity levels.
	Metric 6:	Testing Conditions	Medium	Temperature reported only, TOC reported for only on study group, no other testing conditions provided.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, test substance loss was accounted for and test substance was renewed daily.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism species and starting density was reported, organism was obtained from a reliable academic source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency was adequate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between replicates was addressed, test substance was measured in media.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No differences in organism health or attrition were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some analytical method details were not included, percent recovery was reported and appropriate. Data only reported graphically.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Tam, D. D., Shiu, W. Y., Qiang, K., Mackay, D. (1996). Uptake of chlorobenzenes by tissues of the soybean plant: Equilibria and kinetics. Environmental Toxicology and Chemistry 15(4):489-494.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	660566

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Non-guideline
Solvent, Reactivity, Storage, Stability	distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Co.; Solution in distilled water; Of highest purity; used without further purification. Notes: Tested as a solution with 1,2,4-Trichlorobenzene and 1,2,3,5-Tetrachlorobenzene
Test Organism and Test Organism Details	other; 6–8-week-old soybean plants, Glycine max L.
Lipid Content, Test Temperature, pH, and Depuration Time	Amount of lipid as % of fresh mass: leaves 1.92±0.05, petioles 0.47±0.09, stems 0.40±0.02, and roots 0.38±0.08; 20°C; Not reported; Not reported
Moisture, TOC, and Test Conditions Comments	Water content % by drying: leaves 82.6±0.1, petioles 85.9±0.7, stems 84.0±0.6, and roots 92.1±0.5; Not reported; Test concentrations: 4.42-5.66 mg/L 1,2-DCB–4 g leaves, 1 g petioles, 1–6 g stems, 1–1.2 g roots; sealed flasks were shaken with a Burrell wrist action shaker or New Brunswick gyratory shaker
Nominal Measured and Time Plateau	Measured; Uptake of 30-65% of all chemicals in the solution occurred in the first 2 hours.
Duration, Parameter, and Sampling Frequency	10 min to 23 days; DT50; daily
Analytical Method and Analytical Details	GD-ECD; GC Peak areas integrated; Kb = equilibrium bioconcentration factor (L/kg);
Results Value, Result Type, and Results Standard Deviation	79 leaves, 28 petioles, 20 stems, 22 roots; BCF; Not Reported
Calculation Basis and Basis	steady state; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	Half times: leaves 1.7 hr, petioles 1.0 hr, stems 1.3 hr, and roots 0.55 hr; Not reported; Depletion; Not reported

EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	The study did not include or report control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.
	Metric 7:	Testing Consistency	High	The test conditions were consistent.

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Study Citation:	Tam, D. D., Shiu, W. Y., Qiang, K., Mackay, D. (1996). Uptake of chlorobenzenes by tissues of the soybean plant: Equilibria and kinetics. Environmental Toxicology and Chemistry 15(4):489-494.			
OECD Harmonized Template:	Terrestrial Bioconcentration			
HERO ID:	660566			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Wang, M. J., Jones, K. C. (1994). Uptake of chlorobenzenes by carrots from spiked and sewage sludge-amended soil. Environmental Science & Technology 28(7):1260-1267.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	647188

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: Soil uptake of chemicals from spiked sewage and sludge-amended soils by carrot foliage and roots
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	other; Daucus carota
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20-30°C; Not reported; Not reported
Moisture, TOC, and Test Conditions Comments	Not reported; control soil 2.38% OC, soil spiked with CB 2.46% OC, low rate sludge amended soils 2.69% OC, high rate sludge amended soils 4.88% OC; Carrot seeds were planted in a control soil, soil spiked with CB, and 2 sludge amended soils; carrots harvested after 100d, separated into root and above-ground parts
Nominal Measured and Time Plateau	Measured; was assumed that no compound loss occurred from other processes; Not reported
Duration, Parameter, and Sampling Frequency	100 days; other; Not reported
Analytical Method and Analytical Details	Not reported; Recoveries from carrots 66-93%; from soils 82-97%;
Results Value, Result Type, and Results Standard Deviation	BCF in foliage: Control soil = NR, soil spiked with CB = 0.42, low rate sludge amended soils = 1.2, high rate sludge amended soils = 0.49; BCF; Not Reported
Calculation Basis and Basis	kinetic; other
Elimination, Metabolites, Kinetic Parameter, and Statistics	Measured concentrations (ug/kg) of target before sowing, after harvest in control soil NR, NR; in spiked soil 29,17; low rate 13,7.3; high rate 60,45 (std dev reported in table); Not reported; Growth; BCF defined as ratio of concentrations in the carrot shoot tissues and the soils; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate control groups included for this type of study.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation and storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were appropriate for the method.

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Study Citation:	Wang, M. J., Jones, K. C. (1994). Uptake of chlorobenzenes by carrots from spiked and sewage sludge-amended soil. Environmental Science & Technology 28(7):1260-1267.			
OECD Harmonized Template:	Terrestrial Bioconcentration			
HERO ID:	647188			
EVALUATION				
Domain	Metric	Rating	Comments	
	Metric 7:	Testing Consistency	High	The test conditions were consistent.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test species was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Other loss processes; biotic/abiotic loss assumed to be null
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	This metric met the criteria for medium confidence as expected for this type of study; analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. Chemosphere 53(5):583-591.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	1003825

EXTRACTION				
Parameter		Data		
CASRN and Test Material		95-50-1; 1,2-DCB		
Confidentiality, EndPoint, Type, Guideline		None; bioaccumulation: terrestrial; Experimental; other: Plant bioaccumulation through soil		
Solvent, Reactivity, Storage, Stability		n-hexane; NR; NR; NR		
Radiolabel, Source, State, Purity		14C labelled; Sigma; NR; NR Notes: Specific activity: 144.3 MBq/mmol		
Test Organism and Test Organism Details		other; Holcus lanatus grass plants (Herbiseed, UK)		
Lipid Content, Test Temperature, pH, and Depuration Time		Not reported; 20°C (12 h day cycle); 15°C (12 h night cycle); 4.3; Not reported		
Moisture, TOC, and Test Conditions Comments		60% maximum moisture holding capacity; 32.9 ± 0.8 mg/g dw; Test substance was applied to soil		
Nominal Measured and Time Plateau		0.20 mg/g dry soil (nominal); Not reported		
Duration, Parameter, and Sampling Frequency		5 weeks; Not Reported; Every other week (week 2 and 5)		
Analytical Method and Analytical Details		Liquid scintillation counter; Extracted with n-hexane before analysis, then subsequently digested with chromic acid and let sit over night, trapping 14CO2 in NaOH, which was then mixed with Hionic-flour scintillation cocktail for analysis. Mean recovery 88.3±1.4% and 84.9±5.2%;		
Results Value, Result Type, and Results Standard Deviation		1.14 (week 2) and 11.3 (week 5); BCF; Not Reported		
Calculation Basis and Basis		Not Reported; whole body d.w.		
Elimination, Metabolites, Kinetic Parameter, and Statistics		Not reported; Not reported; Not reported; Not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	A concurrent control was not required for this study type.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across the study groups
	Metric 8:	System Type and Design	High	Equilibrium was established.
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Study Citation:	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. Chemosphere 53(5):583-591.			
OECD Harmonized Template:	Terrestrial Bioconcentration			
HERO ID:	1003825			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported. The test organisms were obtained from a reliable source.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the outcomes of interest
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The sources of variability and uncertainty in the measurement and statistical techniques between groups were considered and accounted for in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups and there were no differences among the study groups in organism attrition or health outcomes that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Lipid content or the lipid-normalized bioconcentration factor was not reported for the study. BCF had to be calculated independently
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistic methods were described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Brown, R. A., Culver, T. B., Smith, J. A. (1999). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil in a column system. :106-110.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5344521

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; uptake and desorption - column method
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 2
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; 10 mg/L test substance and 200 mg/L sodium azide pumped through column at 2 mL/hr
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Picatinny sand
Media, Recovery, and Statistics	Aqueous solution; Not reported; 95% confidence intervals
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not Reported; 100 hr; 3, 7, 14, and 49 d contact period, at the end of which 0.002 N calcium sulfate solution to desorb the test substance.
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported
Partition Coefficient Type and Partition Coefficient Results	14 -d contact period Mass Transfer Rate; 1.11±1.25 /hr (uptake only), 0.135±0.155 /hr (desorption only), 0.377±0.459 /hr (3 flow: uptake, contact, desorption)
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Not Reported
Mass Balance	95%

EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance		Metric 1: Test Substance Identity	High	The test substance was identified by name.
		Metric 2: Test Substance Purity	Medium	The source and purity of the test substance were not reported.
Domain 2: Test Design		Metric 3: Study Controls	Low	QCNote: Changed from "Medium" to "Low" because no controls were reported and only two repetitions were used in the study.
		Metric 4: Test Substance Stability	Medium	Test solution concentrations were reported but not storage.

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Study Citation:	Brown, R. A., Culver, T. B., Smith, J. A. (1999). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil in a column system. :106-110.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5344521			
Domain		Metric	EVALUATION	
			Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Many testing conditions (soil characteristics, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were presumably consistent throughout the study.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable maintaining the test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining sorption kinetics.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not described, but frequency was reported graphically and was appropriate for kinetics determinations.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Test conditions were not reported in great detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate and mass balance was reported and acceptable. Raw data was only reported graphically, kinetics were reported for one contact time only.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Downgraded from “Medium” to “Low”. Original reviewer stated: “Limited study details and no comparison to previous studies inhibited verification of the plausibility of the results.” I agree. However these study characteristics cause the quality of this metric to be ranked to “Low” as defined above.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination**Medium**

Study Citation:	Carmichael, L. M., Smith, T. G., Pardieck, D. L. (1999). Site-specific sorption values for mixtures of volatile and semivolatile organic compounds in sandy soils. Journal of Environmental Quality 28(3):888-897.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1487294

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Column desorption studies used for the determination of site-specific partition coefficients, Kd, in subsurface, low organic soils and ground water from Toms River superfund site in NJ.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 3
pH, Test Temperature, Buffer, and Test Details	6.02; 15C; Not reported; Sorption isotherms developed in soil core packed columns with uncontaminated ground water
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; sand: 970 g/kg, silt and clay: 30 g/kg; conductivity: 500 mg/L as Cl-
Bulk Density and Matrix Details	Bulk density: 1.60 g/cm3; uncontaminated experimental soil composed of quartz sand coated with iron oxides and hydroxides
Media, Recovery, and Statistics	uncontaminated groundwater; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kd (L/kg) mean using 3 soil cores; 0.072 (±0.062)
Partition Coefficient Phase and Partition Coefficient Results	soil-water; calculated using $R = (V_{ta}) \times (V_{br})^{-1} = 1 + (p \cdot n^{-1})K_d$
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported.

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Study Citation:	Carmichael, L. M., Smith, T. G., Pardieck, D. L. (1999). Site-specific sorption values for mixtures of volatile and semivolatile organic compounds in sandy soils. Journal of Environmental Quality 28(3):888-897.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1487294			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Several details were omitted.
	Metric 7:	Testing Consistency	Medium	Limited detail regarding this metric.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited detail regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Carmichael, L. M., Smith, T. G., Pardieck, D. L. (1999). Site-specific sorption values for mixtures of volatile and semivolatile organic compounds in sandy soils. Journal of Environmental Quality 28(3):888-897.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1487294			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Batch reactor studies used for the determination of site-specific partition coefficients, Kd, in subsurface, low organic soils and ground water from Toms River superfund site in NJ.			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	5.75; Not reported; Not reported; Sorption isotherms developed with 25 g of soil and NaN3-amended contaminated ground water with no headspace in glass bottles.			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; sand: 955 g/kg, silt and clay: 45 g/kg; Not reported			
Bulk Density and Matrix Details	Bulk density: 1.64 g/cm3; BET surface area: 2.89 m2/g; uncontaminated experimental soil composed of quartz sand coated with iron oxides and hydroxides			
Media, Recovery, and Statistics	contaminated groundwater; Not reported; Not reported			
Transformation Products, Equilibrium	Not reported; Not reported; Not reported			
Adsorption Details, and Equilibrium Desorption Details				
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Not reported			
Desorption Type				
Partition Coefficient Type and Partition Coefficient Results	Kd (L/kg); 0.205 (r-squared = 0.96)			
Partition Coefficient Phase and Partition Coefficient Results	soil-water; calculated using $R = (V_{ta}) \times (V_{br})^{-1} = 1 + (p \cdot n^{-1})K_d$ from batch isotherm			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influenced the test substance or are likely to have a substantial impact on the study results.

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Study Citation:	Carmichael, L. M., Smith, T. G., Pardieck, D. L. (1999). Site-specific sorption values for mixtures of volatile and semivolatile organic compounds in sandy soils. Journal of Environmental Quality 28(3):888-897.				
OECD Harmonized Template:	Adsorption and Desorption				
HERO ID:	1487294				
Domain		Metric	EVALUATION Rating		Comments
Domain 3: Test Conditions					
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.	
	Metric 6:	Testing Conditions	Low	Several details were omitted.	
	Metric 7:	Testing Consistency	Medium	Limited detail regarding this metric.	
	Metric 8:	System Type and Design	High	The system type and design were appropriate.	
Domain 4: Test Organisms					
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.	
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.	
Domain 5: Outcome Assessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.	
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.	
Domain 6: Confounding/Variable Control					
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.	
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.	
Domain 7: Data Presentation and Analysis					
	Metric 15:	Data Reporting	Low	concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited detail regarding this metric.	
Domain 8: Other					
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible	
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.	
Overall Quality Determination			Medium		

Study Citation:	Chen, W., Kan, A. T., Fu, G., Vignona, L. C., Tomson, M. B. (1999). Adsorption-desorption behaviors of hydrophobic organic compounds in sediments of Lake Charles, Louisiana, USA. Environmental Toxicology and Chemistry 18(8):1610-1616.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	652333

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Non-guideline study of adsorption-desorption in sediments
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Ultra Scientific, North Kingstown, RI, USA; 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; 1 adsorption (3 d) followed by 18 desorptions (1–2 d per step)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; organic fraction: 4.1%; Inorganic fraction: quartz; 31.2% moisture; Not reported
Bulk Density and Matrix Details	Not reported; 1.4 g of sediments and 40 ml of solution
Media, Recovery, and Statistics	Lake Charles sediments; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Adsorption log K _{oc} ; 3.18, 3.15 (two experiments); Adsorption log K _{oc} = log[q/C]/OC, where q (ug/g) and C (ug/ml) are the solid- and aqueous-phase contaminant concentrations after the adsorption step and OC (=0.041 g/g) is the fractional soil organic carbon content.; Not reported
Partition Coefficient Type and Partition Coefficient Results	Desorption log K _{oc} ; 5.18
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Solid-phase concentration of three freshly contaminated compounds after adsorption.
Mass Balance	Data are calculated from the chemical mass balance.

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

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Study Citation:	Chen, W., Kan, A. T., Fu, G., Vignona, L. C., Tomson, M. B. (1999). Adsorption-desorption behaviors of hydrophobic organic compounds in sediments of Lake Charles, Louisiana, USA. Environmental Toxicology and Chemistry 18(8):1610-1616.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	652333			
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Testing condition details were omitted.
	Metric 7:	Testing Consistency	N/A	Not applicable; multiple study groups were not reported.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	The target chemical concentrations, extraction efficiency, percent recovery, and 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 Results	Low	The study results were reasonable, controls not included.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			Uninformative	

Study Citation:	Chiou, C. T., Kile, D. E., Malcolm, R. L. (1988). Sorption of vapors of some organic liquids on soil humic acid and its relation to partitioning of organic compounds in soil organic matter. Environmental Science & Technology 22(3):298-303.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2801853

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; calculation; other: Estimated soil-water partitioning based on measured highly linear sorption isotherms of organic vapors on soil humic acid
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; 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; Experimental data: Room temperature: 23±1°C; Not reported; Static vapor sorption chamber used to determine limiting sorption capacity for polar and non-polar compounds on soil humic acids; approximate K_{om} values were calculated using the results and defined equations using specific compounds water solubility
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 58.03% carbon, 3.64% hydrogen, 33.59% oxygen, 3.26% nitrogen, 0.47% sulfur, 0.10% phosphorus on a moisture free, ash-free basis; Not reported
Bulk Density and Matrix Details	Not reported; Water solubility used for calculation = 154 mg/L
Media, Recovery, and Statistics	Experimental data: Sanhedron soil humic acid; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Sorption equilibrium for experimental data was signified by constant sample weight and constant partial pressure of the vapor in the system (ca. 2-3h); Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Literature value of observed Partition coefficient of solute between soil organic matter and water; 2.27; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Partition coefficient of solute between soil organic matter and water; log K_{om} = 2.48
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Estimate based on calculated limiting partition capacity. Observed value of Log K_{om} = 2.27 reported from other references as listed in Table IV
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	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				

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Study Citation:	Chiou, C. T., Kile, D. E., Malcolm, R. L. (1988). Sorption of vapors of some organic liquids on soil humic acid and its relation to partitioning of organic compounds in soil organic matter. Environmental Science & Technology 22(3):298-303.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	2801853			
Domain	Metric	EVALUATION		Comments
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	There were omissions in the test method details; however, these omissions were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (e.g., temperature was not reported); however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology addressed the intended outcome of interest; however a portioning coefficient was not reported.
	Metric 12:	Test Substance Purity	Low	The study did not report details on sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The chemical concentrations, extraction efficiency, percent recovery, or mass balance were not reported for the experimental data set; and these omissions may prevent meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	There were omissions in the statistical methods or kinetic calculations however, the lack of information is not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Chiou, C. T., Kile, D. E., Malcolm, R. L. (1988). Sorption of vapors of some organic liquids on soil humic acid and its relation to partitioning of organic compounds in soil organic matter. Environmental Science & Technology 22(3):298-303.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2801853

		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 18:	QSAR Models	Medium	The detail on the experimental data set is limited; however the calculation basis is clearly presented and in close agreement with literature values.

Overall Quality Determination	Medium

Study Citation:	Chiou, C. T., Peters, L. J., Freed, V. H. (1979). A physical concept of soil-water equilibria for nonionic organic compounds. Science 206(4420):831-832.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	18016			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Organic matter-water partitioning of 1,2-DCB in soil.			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	6.8; 20°C; Not Reported; Not reported			
Matrix, Clay Silts and Organic Carbon, and CEC	silt loam; 26/69/3.3/1.6; Not reported			
Bulk Density and Matrix Details	Not reported; Not reported			
Media, Recovery, and Statistics	Not reported; Not reported; Not Reported			
Transformation Products, Equilibrium	Not Reported; Not Reported; Not Reported			
Adsorption Details, and Equilibrium Desorption Details	Not Reported; Not Reported; Not Reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not Reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported			
Desorption Type	Not Reported			
Partition Coefficient Type and Partition Coefficient Results	Soil organic-water distribution coefficient; 180			
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Log Koc = 2.3			
Mass Balance	Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	Medium	The test substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design	Metric 3:	Study Controls	Uninformative	Controls were not reported in the study.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation and storage conditions were not reported but are unlikely to have a substantial impact on the study results.
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Study Citation:		Chiou, C. T., Peters, L. J., Freed, V. H. (1979). A physical concept of soil-water equilibria for nonionic organic compounds. Science 206(4420):831-832.		
OECD Harmonized Template:		Adsorption and Desorption		
HERO ID:		18016		
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method was not specified.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	There were no reported changes in the testing conditions between study groups.
	Metric 8:	System Type and Design	Low	Details regarding the system type were not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The soil type was described.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Some details regarding the outcome assessment methodology were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	The sampling methods were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the partition coefficients which may have an impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not reported which may have an impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	A statistical analysis was not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, the reasonableness of the study results could not be evaluated.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Uninformative	

Study Citation:	Chiou, C. T., Porter, P. E., Schmedding, D. W. (1983). Partition equilibriums of nonionic organic compounds between soil organic matter and water. Environmental Science & Technology 17(4):227-231.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5178813

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption of 1,2-dichlorobenzene on Woodburn silty loam soil.
Solvent, Reactivity, Storage, Stability	Water; NR; Stock aqueous solutions were made at 50°C. Excess 1,2-DCB was removed by centrifugation.; NR
Radiolabel, Source, State, Purity	NR; Analabs, Aldrich, and Mallinckrodt; NR; Reagent grade
Sampling Frequency, Sampling Details, and Number of Replicates	One time; Samples were centrifuged for 1 hour after a 24 hour equilibration period and supernatant was extracted with hexane before GC analysis.; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; Not reported; Soil (Woodburn silty loam) solution mixtures were equilibrated in 30mL screw-capped centrifuge tubes for 24h on a mechanical shaker.
Matrix, Clay Silts and Organic Carbon, and CEC	silt loam; 21% clay/68% silt/9% sand/1.9% organic matter; 14 mequiv/100g soil
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Log (Soil organic matter-water distribution coefficient); 2.27
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Small corrections were made based on the Henry's law constant for volatilization losses. Sorption to glass walls was found to be insignificant and was not corrected for. Kom values were obtained from the slopes of the isotherms divided by the organic matter content of the soil.
Mass Balance	Not reported

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

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Study Citation:	Chiou, C. T., Porter, P. E., Schmedding, D. W. (1983). Partition equilibriums of nonionic organic compounds between soil organic matter and water. Environmental Science & Technology 17(4):227-231.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5178813			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	High	The preparation of the test substance was reported and suitable.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable and the test substance was not tested above its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	Medium	Multiple sample groups were not reported; however, the omissions is unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not clearly established; however, the omission is unlikely to have a substantial impact on the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The inoculum type was described and appropriate.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of uncertainty were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable and the data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Culver, T. B., Brown, R. A., Smith, J. A. (2000). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil column. Environmental Science & Technology 34(12):2446-2452.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3546079

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	Aqueous solution 0.002 N in calcium sulfate; NR; NR; Not readily transformed or aerobically degraded. Semi-volatile.
Radiolabel, Source, State, Purity	[UL-14C] specific activity 4.0 mCi/mmol; Sigma Chemical Co. (radiolabeled); Aldrich Chemical Co. (non-radiolabeled); NR; >98% (radiochemical purity) Notes: Mixture of 250 µCi radiolabeled compound and non-radiolabeled compound
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 30d; Column effluent analyzed; 5
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Column experiments conducted, columns 15 cm long 1 cm diameter with Teflon end fittings.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.36% organic carbon; Not reported
Bulk Density and Matrix Details	Not reported; Picatinny sand obtained from Picatinny Arsenal in Morris County, NJ
Media, Recovery, and Statistics	Water; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; 30 d uptake; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kd; 3.2 cm ³ /g
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Mass transfer rate: 0.72/h±1.25/h Uptake time: 97±2 hp = 1.67±0.03 g/cm ³ n = 0.39±0.03v = 8.37±0.61 cm/hD = 2.47±0.84 cm ² /h
Mass Balance	100.6%±6.7%

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

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Study Citation:	Culver, T. B., Brown, R. A., Smith, J. A. (2000). Rate-limited sorption and desorption of 1,2-dichlorobenzene to a natural sand soil column. Environmental Science & Technology 34(12):2446-2452.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3546079			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited test conditions and soil characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining the test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variation between samples was addressed by statistical methods.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, mass balance was reported and accounted for.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Sorption isotherms equations were described in detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Curtis, G. P., Roberts, P. V., Reinhard, M. (1986). A natural gradient experiment on solute transport in a sand aquifer. 4. Sorption of organic solutes and its influence on mobility. Water Resources Research 22(13):2059-2067.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5252509

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; batch sorption experiments
Solvent, Reactivity, Storage, Stability	Methanol; NR; Glass vial with Teflon-lined cap, stored in the dark at 4°C; NR
Radiolabel, Source, State, Purity	1,2-dichloro-(U-14C)-benzene 8.43 mCi/mM, final tracer concentration 500 µCi/uL; Pathfinder Laboratories, Inc., St. Louis, Missouri (radiolabeled), J.T. Baker Chemical Company (nonradiolabelled); NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Centrifuged at 800 G for 30 min, supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	8.3 (water); 21±2°C; Not reported; Solids to solution ratio 2.0 g/cm ³
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 2% chlorite (clay), 0.02% organic carbon content; Not reported
Bulk Density and Matrix Details	Specific surface area 0.8 m ² /g; 1-4 m depth Borden aquifer excavated by University of Waterloo at 21 m from the center of the injection zone and 11.5 m east of the experimental well field at Base Borden, Ontario
Media, Recovery, and Statistics	Synthetic groundwater; NA; NA
Transformation Products, Equilibrium	NA; Shaken on rotary tumbler at 12 rpm; Not Reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	Blank samples with no sorbent; 94±3% recovered by octanol extract; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Freundlich K _f = 1.16±0.00
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	K _d ; 0.76±0.03 (linear with intercept), 0.81±0.03 (linear with suppressed intercept)
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich exponent = 0.91±0.003 Freundlich R ² = 0.994 Linear intercept: 1.26±0.059 Linear with intercept R ² = 0.992 Linear with suppressed intercept R ² = 0.993
Mass Balance	94% recovered by octanol extract, some loss potentially from volatilization

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	High	The test substance was identified by name.
	Metric 2:	Medium	The test substance source but not purity was reported.
Domain 2: Test Design	Metric 3:	High	Glass sorption controls were included, some loss was observed due to volatilization.
	Metric 4:	High	The test substance preparation and storage were reported and appropriate.

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Study Citation:	Curtis, G. P., Roberts, P. V., Reinhard, M. (1986). A natural gradient experiment on solute transport in a sand aquifer. 4. Sorption of organic solutes and its influence on mobility. Water Resources Research 22(13):2059-2067.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5252509			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions were reported (pH, temperature, organic carbon content), some soil characteristics were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the test system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partitioning.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate, sample collection frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate. Mass balance was reported. Raw data was reported graphically.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Sorption calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable based on the method, retardation factor comparison to field data could not be reliably done based on field transformation of the test substance and resulting small concentrations.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Curtis, G., Roberts, P., Reinhard, M. (1985). Sorption of organic solutes: Comparison between laboratory-estimated retardation factors and field observations. :35-38.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5252498

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified, batch isotherm study
Solvent, Reactivity, Storage, Stability	Methanol; NR; Stored at 4°C; NR
Radiolabel, Source, State, Purity	14C-radiolabelled; NR; Liquid; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 24
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; 40 mL glass centrifuge tubes with 45 g aquifer material, saturated with synthetic ground water, and addition of test substance, capped with Teflon-faced silicone septum and centrifuged at 2500 rpm for 30 min
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; organic carbon < 0.1%; Not reported
Bulk Density and Matrix Details	Not reported; Natural aquifer material with synthetic groundwater
Media, Recovery, and Statistics	Glaciofluvial sand aquifer from Canadian Forces Base Borden, Ontario, Canada; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; 3 days equilibrium time; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kd; 7.63 x10 ⁷ m ³ /g±0.30
Partition Coefficient Phase and Partition Coefficient Results	other; "Isotherm intercept: 1.26±0.60 x 10 ⁹ , g/gIsotherm r ² : 0.992"
Mass Balance	94% recovery; performed by displacing 5 mL supernatant with octanol and allowing 1 day equilibration before analysis

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	Medium
Domain 2: Test Design	Metric 3:	Study Controls	Medium
	Metric 4:	Test Substance Stability	High

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Study Citation:	Curtis, G., Roberts, P., Reinhard, M. (1985). Sorption of organic solutes: Comparison between laboratory-estimated retardation factors and field observations. :35-38.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5252498			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Several conditions (pH, temperature, sediment characteristics) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods address the outcomes of interest and were widely accepted approaches for the chemical and media.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability between replicates and possible unintended test substance loss were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, analytical methods were suitable for detection and quantification of the test substance; limits of detection were not reported but assumed to be sensitive enough.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistics were conducted appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Deutsch, J. J., Smith, J. A., Arnold, M. B., Bolus, J. (1998). Sorption and desorption rates of carbon tetrachloride and 1,2-dichlorobenzene to three organobentonites and a natural peat soil. Environmental Science & Technology 32(20):3169-3177.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3568671

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	[14C] labeled, specific activity 4.0 mCi/mmol; Sigma Chemical Company; NR; >98% Notes: Mixture of 250-uCi radiolabeled and non-radiolabeled test substance
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Test tube centrifuged for 1 h at 2000g, aliquot of supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	6.2; 20°C; None; Batch method: Soil, sodium azide, water, and test substance solution added to glass centrifuge tubes with Teflon lined caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 14.6% organic carbon; Not reported
Bulk Density and Matrix Details	Specific surface area 2.16 m ² /g; Peat soil from Picatinny Arsenal, NJ
Media, Recovery, and Statistics	Deionized water; Not reported; 90% confidence interval standard deviation reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Rotated in the dark for 7 d; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Blank (deionized water, no soil); Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Koc (L/kg); 707.5±51.4; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Linear isotherm Kd (L/kg); 103.4±7.52
Partition Coefficient Phase and Partition Coefficient Results	soil-water; R ² = 0.996 Sorption was at 94% of equilibrium after 7 d, Kd was estimated by calculating as a single-point from the last collected data point from uptake rate experiments
Mass Balance	Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	High	The test substance was identified definitively by name.
	Metric 2:	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3:	Medium	A blank control was included, the results were not reported.
	Metric 4:	Medium	Test substance preparation and storage were not reported.

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Study Citation:	Deitsch, J. J., Smith, J. A., Arnold, M. B., Bolus, J. (1998). Sorption and desorption rates of carbon tetrachloride and 1,2-dichlorobenzene to three organobentonites and a natural peat soil. Environmental Science & Technology 32(20):3169-3177.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3568671			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	pH, temperature, and organic carbon were reported and appropriate.
	Metric 7:	Testing Consistency	High	Tests conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	The system was at 94% of equilibrium at the time of sampling and the results were based on sorption uptake rate experiments (contact time: 100 d)
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods are appropriate, the number of replicates for the uptake experiment (36) was reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variation was addressed by statistical methods,
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate, Mass balance was not reported. Raw data provided graphically for uptake experiment.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3545787

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; sorption isotherm experiment
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	[14C], 4.0 µCi/mmol; Sigma Chemical, St. Louis, MO, USA; Liquid; >98% (radiochemical purity), >99% (purity of radioisotope) Notes: Mixture of 250-uCi radiolabeled substance and non-radiolabeled substance.
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; NA; Soil with sodium azide was spiked with test substance solution at concentrations of 25 to 41000 ug/L in glass centrifuge tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; fraction of organic carbon 0.146; Not reported
Bulk Density and Matrix Details	Specific surface area 2.16±0.21 m ² /g; Picatinny peat collected from Picatinny Arsenal, NJ
Media, Recovery, and Statistics	Water; 98.6%±1.2% (control); Regression analysis
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Tubes rotated in the dark for 7 d; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Blanks; Loss rate constant: k = 6.2E-4±9.7E-5 / d; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Freundlich model Kf: 164.0±8.71Linear model Kd: 118.9±6.21
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich model: n = 0.890±0.03 p = 0.999Linear model: p = 0.997
Mass Balance	>98%

EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Blank controls were included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stability was reported.

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Study Citation:	Deutsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3545787			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil characteristics (% clay, silt, sand) were not reported, pH was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and allowed for the calculation of sorption isotherms.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Potential non-sorption loss was accounted for the blanks, statistical analysis accounted for variation between partition coefficient results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, the analytical method was appropriate for the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis for sorption isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3545787

EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; sorption isotherm experiment			
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR			
Radiolabel, Source, State, Purity	[14C], 4.0 µCi/mmol; Sigma Chemical, St. Louis, MO, USA; Liquid; >98% (radiochemical purity), >99% (purity of radioisotope) Notes: Mixture of 250-uCi radiolabeled substance and non-radiolabeled substance.			
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Supernatant analyzed; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; NA; Soil with sodium azide was spiked with test substance solution at concentrations of 25 to 41000 ug/L in glass centrifuge tubes with Teflon-lined screw caps			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; fraction of organic carbon 0.0053; Not reported			
Bulk Density and Matrix Details	Specific surface area 4.73±0.51 m^2/g; Picatinny sand collected from Picatinny Arsenal, NJ			
Media, Recovery, and Statistics	Water; 98.6%±1.2% (control); Regression analysis			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Tubes rotated in the dark for 7 d; Not Reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Blanks; Loss rate constant: k = 6.2E-4±9.7E-5 / d; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Freundlich model Kf: 4.29±0.25Linear model Kd: 2.70±0.10			
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported			
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich model: n = 0.868±0.02 p = 0.999Linear model: p = 0.997			
Mass Balance	>98%			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blank controls were included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stability was reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
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Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3545787			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some soil characteristics (% clay, silt, sand) were not reported, pH was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and allowed for the calculation of sorption isotherms.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Potential non-sorption loss was accounted for the blanks, statistical analysis accounted for variation between partition coefficient results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, the analytical method was appropriate for the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis for sorption isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3545787

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; sorption isotherm experiment
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	[14C], 4.0 µCi/mmol; Sigma Chemical, St. Louis, MO, USA; Liquid; >98% (radiochemical purity), >99% (purity of radioisotope) Notes: Mixture of 250-uCi radiolabeled substance and non-radiolabeled substance.
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; NA; Soil with sodium azide was spiked with test substance solution at concentrations of 25 to 41000 ug/L in glass centrifuge tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; fraction of organic carbon 0.0123; Not reported
Bulk Density and Matrix Details	Specific surface area 6.36±0.18 m ² /g; Woodburn silty sand collected from Woodburn, Oregon
Media, Recovery, and Statistics	Water; 98.6%±1.2% (control); Regression analysis
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Tubes rotated in the dark for 7 d; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Blanks; Loss rate constant: k = 6.2E-4±9.7E-5 / d; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Freundlich model Kf: 8.05±0.50Linear model Kd: 3.55±0.20
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich model: n = 0.762±0.02 p = 0.998Linear model: p = 0.993
Mass Balance	>98%

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Blank controls were included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stability was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:		Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.		
OECD Harmonized Template:		Adsorption and Desorption		
HERO ID:		3545787		
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 6:	Testing Conditions	Medium	Some soil characteristics (% clay, silt, sand) were not reported, pH was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and allowed for the calculation of sorption isotherms.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Potential non-sorption loss was accounted for the blanks, statistical analysis accounted for variation between partition coefficient results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, the analytical method was appropriate for the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis for sorption isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3545787

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; sorption isotherm experiment
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	[14C], 4.0 µCi/mmol; Sigma Chemical, St. Louis, MO, USA; Liquid; >98% (radiochemical purity), >99% (purity of radioisotope) Notes: Mixture of 250-uCi radiolabeled substance and non-radiolabeled substance.
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; NA; Soil with sodium azide was spiked with test substance solution at concentrations of 25 to 41000 ug/L in glass centrifuge tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; fraction of organic carbon 0.0126; Not reported
Bulk Density and Matrix Details	Specific surface area 24.6±0.20 m ² /g; Army Core of Engineers silty-clay obtained from the lower Ohio River Valley
Media, Recovery, and Statistics	Water; 98.6%±1.2% (control); Regression analysis
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Tubes rotated in the dark for 7 d; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Blanks; Loss rate constant: k = 6.2E-4±9.7E-5 / d; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Freundlich model Kf: 35.85±1.73Linear model Kd: 13.49±1.33
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich model: n = 0.647±0.02 p = 0.998Linear model: p = 0.972
Mass Balance	>98%

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Blank controls were included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stability was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3545787			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some soil characteristics (% clay, silt, sand) were not reported, pH was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and allowed for the calculation of sorption isotherms.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Potential non-sorption loss was accounted for the blanks, statistical analysis accounted for variation between partition coefficient results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, the analytical method was appropriate for the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis for sorption isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3545787

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; sorption isotherm experiment
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	[14C], 4.0 µCi/mmol; Sigma Chemical, St. Louis, MO, USA; Liquid; >98% (radiochemical purity), >99% (purity of radioisotope) Notes: Mixture of 250-uCi radiolabeled substance and non-radiolabeled substance.
Sampling Frequency, Sampling Details, and Number of Replicates	Once after 7d; Supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; NA; Soil with sodium azide was spiked with test substance solution at concentrations of 25 to 41000 ug/L in glass centrifuge tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; fraction of organic carbon 0.0018; Not reported
Bulk Density and Matrix Details	Specific surface area 2.26±0.11 m ² /g; Army Core of Engineers sand from the lower Ohio River Valley
Media, Recovery, and Statistics	Water; 98.6%±1.2% (control); Regression analysis
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Tubes rotated in the dark for 7 d; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Blanks; Loss rate constant: k = 6.2E-4±9.7E-5 / d; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Freundlich model Kf: 4.23±0.16Linear model Kd: 4.23±0.25
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Freundlich model: n = 0.869±0.07 p = 0.997Linear model: p = 0.996
Mass Balance	>98%

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Blank controls were included and tested valid.
	Metric 4:	Test Substance Stability	High	The test substance preparation and stability was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Deitsch, J. J., Smith, J. A., Culver, T. B., Brown, R. A., Riddle, S. A. (2000). Distributed rate model analysis of 1,2-dichlorobenzene batch sorption and desorption rates for five natural sorbents. Environmental Science & Technology 34(8):1469-1476.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3545787			
Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some soil characteristics (% clay, silt, sand) were not reported, pH was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and allowed for the calculation of sorption isotherms.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Potential non-sorption loss was accounted for the blanks, statistical analysis accounted for variation between partition coefficient results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Mass balance was reported, the analytical method was appropriate for the test substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis for sorption isotherm calculation was described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Kan, A. T., Fu, G., Hunter, M., Chen, W., Ward, C. H., Tomson, M. B. (1998). Irreversible sorption of neutral hydrocarbons to sediments: Experimental observations and model predictions. Environmental Science & Technology 32(7):892-902.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1487161

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	none; experimental; other: non-guideline: sediment batch adsorption/desorption using multiple cycles
Solvent, Reactivity, Storage, Stability	methanol (less than 2% (v/v) or 1% (mole fraction) of the liquid); NR; NR; NR
Radiolabel, Source, State, Purity	10.7 specific activity in microcurie per micromole; Sigma; NR; confirmed by GC in the lab Notes: dilution with unlabeled 12C stock solution for a specific activity of 3.742 $\mu\text{Ci/mol}$; test concentrations: 0.390-0.713 mg/L
Sampling Frequency, Sampling Details, and Number of Replicates	not specified; after centrifugation chemical concentration measured in supernatant; solid phase measured at the end of adsorption/desorption cycles; not reported
pH, Test Temperature, Buffer, and Test Details	8.0; room temperature; buffer: 1 mM $\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$, 0.5 mM MgCl_2 , 1 mM $\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$; formaldehyde (0.01M; less than 2% (v/v) or 1% (mole fraction) of the liquid) or sodium azide (0.01M) added as bacterial inhibitor
Matrix, Clay Silts and Organic Carbon, and CEC	other; Lula sediment 0.27% OC; not reported
Bulk Density and Matrix Details	not reported; 0.1-2 g dried sediment
Media, Recovery, and Statistics	water; not reported; 95% CI
Transformation Products, Equilibrium	not reported; equilibration time = 3-5 days; not reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Kp: Adsorption partition coefficient; not reported; 3.65 mL/g; not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	log Koc: Irreversible Fraction Partition Coefficient Normalized per OC; log Koc (irreversible) = 5.5 ± 0.40 ; log Koc = 3.13
Partition Coefficient Phase and Partition Coefficient Results	sediment/water; not reported
Mass Balance	not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1: Test Substance Identity	High	The test substance was identified.
	Metric 2: Test Substance Purity	High	The test substance source was reported.
Domain 2: Test Design	Metric 3: Study Controls	Low	Controls were run with naphthalene.

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Study Citation:	Kan, A. T., Fu, G., Hunter, M., Chen, W., Ward, C. H., Tomson, M. B. (1998). Irreversible sorption of neutral hydrocarbons to sediments: Experimental observations and model predictions. Environmental Science & Technology 32(7):892-902.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1487161			
Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (e.g., temperature was not reported).
	Metric 7:	Testing Consistency	High	Reported test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			High	

Study Citation:	Kile, D. E., Chiou, C. T., Zhou, H., Li, H., Xu, O. (1995). Partition of nonpolar organic pollutants from water to soil and sediment organic matters. Environmental Science & Technology 29(5):1401-1406.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3569765

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; Sorption/partitioning experiments using water and sediment
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co.; Liquid; 99%, HPLC grade
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Aqueous and solid phase analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 24±1°C; Not reported; 2-5 g of soil or sediment added to aqueous CaCl ₂ solution; stock solution of test substance added into sediment-water slurry via syringe; slurries mechanically mixed for 2-3 d; phases separated by centrifuge, extracted, and analyzed
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Organic carbon 0.34-6.09% (soils); 0.11-4.73% (bed sediment); 0.38-1.82% (suspended solids); 1.56-5.27% (contaminated sites); Not reported
Bulk Density and Matrix Details	Not reported; 32 soils, 36 bed sediments collected from US and China; sediments collected from rivers, freshwater lakes, and marine/bay harbors; 5 suspended solids collected from rivers in IL, MO, and China; 4 contaminated sediments and soils collected from LA, MA, MN
Media, Recovery, and Statistics	sediment and water; Not reported; Uncertainty±8%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Equilibrium reached within 2 d; NA
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Average Koc (range); Soil: 290±42 (230-407) Bed sediments: 502±66 (301-599); Suspended solids: (231-423); Contaminated sites: (662-2910); When Koc uncertainty is considered with foc, observed differences of individual Koc are relatively small. Show little dependence on organic carbon content.; Not reported
Partition Coefficient Type and Partition Coefficient Results	Not reported; Not reported
Partition Coefficient Phase and Partition Coefficient Results	soil-water; sediment-water; suspended solids-water; Not reported
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	No controls were included.

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Study Citation:	Kile, D. E., Chiou, C. T., Zhou, H., Li, H., Xu, O. (1995). Partition of nonpolar organic pollutants from water to soil and sediment organic matters. Environmental Science & Technology 29(5):1401-1406.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3569765			
Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance preparation was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Soil characteristics besides origin and organic carbon % were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	System design was reported and appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling was reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	No details on specific GC methods or extraction efficiency were reported and mass balance was not provided.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Detailed statistical analysis of results was not provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Study reported low details however no serious flaws in methodology were noted.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			Low	

Study Citation:	Kleineidam, S., Schuth, C., Grathwohl, P. (2002). Solubility-normalized combined adsorption-partitioning sorption isotherms for organic pollutants. Environmental Science & Technology 36(21):4689-4697.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1962773

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined using batch experiments
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Corp.; NR; NR Notes: 1,2-DCB; used as received
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; supernatant filtered and extracted with cyclohexane and analyzed; 3
pH, Test Temperature, Buffer, and Test Details	Not reported; 20C; Not reported; Batch experiments run in crimp-top glass reaction vials sealed with PTFE-lined butyl rubber septa with 0.005-5 g pulverized sample; shaken by hand daily for 7 days, stored in the dark
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 33.4% OC; Not reported
Bulk Density and Matrix Details	specific surface area: 1.20 m2/g; Peat
Media, Recovery, and Statistics	filter sterilized water; Not reported; r squared = 0.99
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; 7 days was found to be sufficient for equilibrium to establish; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Reference vials containing no solids were prepared and treated identically.; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Kd: distribution coefficient at 0.1 S (L/kg); 101; Not reported; log Kfr = 2.15±0.01; log K*fr = 3.99 (log Kfr (L/kg) Freundlich sorption coefficient; log K*fr solubility normalized Freundlich coefficient)
Partition Coefficient Type and Partition Coefficient Results	log Koc solubility normalized organic carbon normalized partitioning coefficient; Raoult's Law Kp: partitioning coefficient (L/kg); log Koc = ; Kp = 106
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Calculated using equation: log Koc = log K*Fr - log(oc/100)
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Medium	Source was reported, purity was not specified.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Controls were reported; results not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.

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Study Citation:		Kleineidam, S., Schuth, C., Grathwohl, P. (2002). Solubility-normalized combined adsorption-partitioning sorption isotherms for organic pollutants. Environmental Science & Technology 36(21):4689-4697.		
OECD Harmonized Template:		Adsorption and Desorption		
HERO ID:		1962773		
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some test condition details were omitted.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details including recovery and detection limits were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge Chironomus decorus. Ecotoxicology and Environmental Safety 15(2):226-241.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1992457

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherm experiment with natural lake sediment
Solvent, Reactivity, Storage, Stability	distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	Yes, uniformly ring-labeled ¹⁴ C standards from Pathfinder Laboratories, Inc. St. Louis MO, 98% radiopure; final specific activity: 1 µCi/L; Aldrich Chemical Co. (Milwaukee, WI); NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	every 24 hrs; depletion of radioactivity in water monitored every 24 hrs for 5 days; 2
pH, Test Temperature, Buffer, and Test Details	4.4; Not reported; Not reported; Samples, water and sediment mixed by inversion
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 51% sand, 47% silt, 2% clay; two sediment samples used: High OC - 14.5% organic matter sample and low OC - 3.6% organic matter obtained after processing of original sediment; 38 mEq/100g
Bulk Density and Matrix Details	Not reported; Sediment from Sherman Island Lake in Sacramento-San Joaquin River Delta near Rio Vista, California
Media, Recovery, and Statistics	concentrations of 1, 20, 40, 60, 80, and 100 µg/L tested; Not reported; High OC sediment r = 0.98; low OC sediment r = 0.99
Transformation Products, Equilibrium	Not reported; apparent equilibrium reached within 48 hrs; Not reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	control tubes with no sediment included; Results taken into account for overall sorption to sediment; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	sediment-water partition coefficient K _p ; High organic sediment K _p = 98(±17); low organic sediment K _p = 40(±8); amount of chemical sorbed was calculated as difference between amount of substance in solution before and after sediment addition; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Not reported; Not reported
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not reported
Mass Balance	Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	High
Domain 2: Test Design	Metric 3:	Study Controls	High
			Controls were included.

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Study Citation:		Knezovich, J. P., Harrison, F. L. (1988). The bioavailability of sediment-sorbed chlorobenzenes to larvae of the midge <i>Chironomus decorus</i> . <i>Ecotoxicology and Environmental Safety</i> 15(2):226-241.		
OECD Harmonized Template:		Adsorption and Desorption		
HERO ID:		1992457		
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (e.g., temperature, pH monitoring); however, sufficient data were reported to determine that omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	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 Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Equilibrium established; however, mass balance, %recovery, MDL not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis valid.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	High	The metric is not applicable to this study type.

Overall Quality Determination**High**

Study Citation:	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2048335

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: 1,2-DCB sorption to high- and low-organic sediment.
Solvent, Reactivity, Storage, Stability	Methane; NR; NR; NR
Radiolabel, Source, State, Purity	Ring-labeled 14-C 1,2-DCB (Pathfinder Laboratories Inc., St. Louis, MO) >98% radiopurity.; Aldrich Chemical Co. (Milwaukee, WI); NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Notes: NR Daily; Water samples were collected by pipette and added to 15mL scintillation vials.; 3
pH, Test Temperature, Buffer, and Test Details	4.4; Not reported; Not reported; 1,2-DCB was added to 120mL distilled water in methanol to achieve final concentrations of 1, 20, 40, 60, 80, and 100 µg/L. Radiolabeled compounds: specific activity of 1 µCi/L
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 2% clay/47% silt/51% sand/14.5% organic carbon. Acid-washed sediment had TOC of 3.6%.; 38 (meq/100g)
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Partition coefficient, Kp, in high- and low-organic content sediment.; High-organic sediment: 98±17; low-organic sediment: 40±8
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Equilibrium was reached within 48 hours.
Mass Balance	Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance chemical purity was not reported; however, the radiochemical purity was reported and appropriate.
Domain 2: Test Design	Metric 3:	Study Controls	High	Appropriate blank controls were reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity were reported and appropriate.

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Study Citation:	Lawrence Livermore National Laboratory, (1986). Transfer coefficients of selected sediment-bound organic chemicals in a model system (report) with attachment and cover letter dated 120886.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	2048335			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and the test substance was tested below its aqueous solubility.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were clearly reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the results and unlikely to have an impact on the interpretation of the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The extraction efficiency was not clearly reported but the omission is unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Liu, D., Yan, J., Jin, J., Ding, C., Sun, Y. (2013). Removal of 1, 2-dichlorobenzene (1, 2-DCB) by native and heat-treated anaerobic sludge. :558-564.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5345712			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Batch experiment, Freundlich and Langmuir partition coefficients, sludge; Not Reported			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NA; NR; NR; NR Notes: Initial concentration 40 mg/L			
Sampling Frequency, Sampling Details, and Number of Replicates	5, 10, 15, 20, 30, 40, 60, 120, 240, and 360 min; Solution analyzed; NR			
pH, Test Temperature, Buffer, and Test Details	NR; 35 deg C; NR; 100 mL screw-topped flasks with 50 mL wastewater and 5.0 wet sludge added. Heat-treated sludge autoclaved at 116 deg C and 100 kPa for 30 min.			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Mixture liquid suspended solid concentration: 10 g/L; NA			
Bulk Density and Matrix Details	NR; Anaerobic activated sludge from pharmaceutical WWTP in Jingjiang, China			
Media, Recovery, and Statistics	Wastewater; NR; NR			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; Shaken in water-bath shaker at 150 rpm; Equilibrium time of 4 hours; Not Reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Control system without sludge; NR; NR			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; 0.649 (non-treated sludge); 0.585 (heat treated sludge)			
Partition Coefficient Type and Partition Coefficient Results	Langmuir; K1 = 0.061 (non-treated sludge), 0.051 (heat-treated sludge)			
Partition Coefficient Phase and Partition Coefficient Results	Sludge - wastewater; Freundlich:n = 1.9529 (non-treated sludge); 1.8899 (heat-treated sludge)R^2 = 0.9699 (non-treated sludge); 0.9229 (heat-treated sludge)Langmuirq_m = 6.296 (non-treated sludge); 5.823 (heat-treated sludge)R^2 = 0.9859 (non-treated sludge); 0.9839 (heat-treated sludge) Sorption rate (pseudo second-order)K = 2.854 g/mg min (non-treated sludge); 2.601 g/mg min (heat-treated sludge)q_c = 1.38 mg/g (non-treated sludge); 1.33 mg/g (heat-treated sludge)R^2 = 0.9999 (non-treated and heat-treated sludge)			
Mass Balance	NR			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Solid-less controls were included but the results were not reported.
	Metric 4:	Test Substance Stability	Medium	Minimal test substance preparation and no storage information were reported.

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Study Citation:	Liu, D., Yan, J., Jin, J., Ding, C., Sun, Y. (2013). Removal of 1, 2-dichlorobenzene (1, 2-DCB) by native and heat-treated anaerobic sludge. :558-564.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5345712			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance and was tested below its reported aqueous solubility.
	Metric 6:	Testing Conditions	Low	Test information such as organic content and pH were not reported. Wastewater characteristics were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent between study groups.
	Metric 8:	System Type and Design	Medium	The test system achieved equilibrium but mass balance was not reported and maintenance of test substance concentrations was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partition coefficients.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were acceptable for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty and variability in measurements were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was reported and appropriate; extraction efficiency and limit of detection was not reported. Mass balance was not reported. Raw data was reported graphically only.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical calculations for the sorption models were conducted appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were not compared to previous studies. Increased sorption was observed in non-treated sludge, thought to be partially due to degradation loss. The heat-treated value may be better reflective of solely sorption loss from solution.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quality Determination		Medium		

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Fluka Chemical Co; NR; 99% Notes: NR			
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; Samples collected manually or in a fractional collector; not specified			
pH, Test Temperature, Buffer, and Test Details	not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h			
Matrix, Clay Silts and Organic Carbon, and CEC	other; Tinker: 0.010% TOC, 40.8% sand, 4.7% clay, 53.1% silt; 20.9 meq/100g			
Bulk Density and Matrix Details	1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 9.2 m2/g			
Media, Recovery, and Statistics	aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Sorption coefficient (L/kg); column 0.05; batch 0.10; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported			
Desorption Type	not reported; not reported			
Partition Coefficient Type and Partition Coefficient Results	not reported; not reported			
Partition Coefficient Phase and Partition Coefficient Results	not reported; not reported			
Mass Balance	not reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination**Uninformative**

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Fluka Chemical Co; NR; 99% Notes: NR			
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; Samples collected manually or in a fractional collector; not specified			
pH, Test Temperature, Buffer, and Test Details	not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h			
Matrix, Clay Silts and Organic Carbon, and CEC	other; Barksdale: 0.105% TOC, 52.3.% sand, 41.5% silt; 32.4 meq/100g			
Bulk Density and Matrix Details	1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 7.5 m2/g			
Media, Recovery, and Statistics	aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Sorption coefficient (L/kg); column 0.23; batch 0.30; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported			
Partition Coefficient Type and Partition Coefficient Results	not reported; not reported			
Partition Coefficient Phase and Partition Coefficient Results	not reported; not reported			
Mass Balance	not reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination

Uninformative

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter		Data		
CASRN and Test Material		Not Reported; 1,2-dichlorobenzene		
Confidentiality, Type, Guideline		none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; Fluka Chemical Co; NR; 99% Notes: NR		
Sampling Frequency, Sampling Details, and Number of Replicates		not reported; Samples collected manually or in a fractional collector; not specified		
pH, Test Temperature, Buffer, and Test Details		not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h		
Matrix, Clay Silts and Organic Carbon, and CEC		other; Blytheville: 0.156% TOC, 67.8% sand, 3.5% clay, 27.3% silt; 18.1 meq/100g		
Bulk Density and Matrix Details		1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 8.0 m2/g		
Media, Recovery, and Statistics		aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17		
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details		not reported; not reported; not reported		
Reference Substance, Reference Substance Results, and Percent Adsorption		not reported; not reported; not reported		
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Sorption coefficient (L/kg); column 0.44; batch 1.28; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported		
Partition Coefficient Type and Partition Coefficient Results		not reported; not reported		
Partition Coefficient Phase and Partition Coefficient Results		not reported; not reported		
Mass Balance		not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination

Uninformative

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter		Data		
CASRN and Test Material		Not Reported; 1,2-dichlorobenzene		
Confidentiality, Type, Guideline		none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; Fluka Chemical Co; NR; 99% Notes: NR		
Sampling Frequency, Sampling Details, and Number of Replicates		not reported; Samples collected manually or in a fractional collector; not specified		
pH, Test Temperature, Buffer, and Test Details		not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h		
Matrix, Clay Silts and Organic Carbon, and CEC		other; Borden: 0.015% TOC, 96.0% sand, 2.0% clay, 2.0% silt; not reported		
Bulk Density and Matrix Details		1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 0.0 m2/g		
Media, Recovery, and Statistics		aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17		
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details		not reported; not reported; not reported		
Reference Substance, Reference Substance Results, and Percent Adsorption		not reported; not reported; not reported		
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Sorption coefficient (L/kg); column -; batch 0.30; Column sorption coefficient not reported; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported		
Partition Coefficient Type and Partition Coefficient Results		not reported; not reported		
Partition Coefficient Phase and Partition Coefficient Results		not reported; not reported		
Mass Balance		not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The intended outcome of interest was not reported for the main study methods.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		Uninformative		

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Fluka Chemical Co; NR; 99% Notes: NR			
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; Samples collected manually or in a fractional collector; not specified			
pH, Test Temperature, Buffer, and Test Details	not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h			
Matrix, Clay Silts and Organic Carbon, and CEC	other; Carswell: 0.027% TOC, 74.8% sand, 18.2% silt; 8.0 meq/100g			
Bulk Density and Matrix Details	1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 9.5 m2/g			
Media, Recovery, and Statistics	aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Sorption coefficient (L/kg); column 0.08; batch 0.18; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported			
Partition Coefficient Type and Partition Coefficient Results	not reported; not reported			
Partition Coefficient Phase and Partition Coefficient Results	not reported; not reported			
Mass Balance	not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination

Uninformative

Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
EXTRACTION				
Parameter		Data		
CASRN and Test Material		Not Reported; 1,2-dichlorobenzene		
Confidentiality, Type, Guideline		none; experimental; other: Non-guideline: batch analysis method and dynamic method using packed column chromatography and frontal analysis for determination of sorption coefficients		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; Fluka Chemical Co; NR; 99% Notes: NR		
Sampling Frequency, Sampling Details, and Number of Replicates		not reported; Samples collected manually or in a fractional collector; not specified		
pH, Test Temperature, Buffer, and Test Details		not reported; not reported; not reported; Column made of stainless steel and glass; flow rate ranged from 1.05-6.00 mL/h		
Matrix, Clay Silts and Organic Carbon, and CEC		other; Lula: 0.020% TOC, 91.0% sand, 3.4% clay, 5.6% silt; 6.3 meq/100g		
Bulk Density and Matrix Details		1.78 (column diameter = 6.2 m); 1.74 (column diameter 21.2 m); surface area 11.8 m2/g		
Media, Recovery, and Statistics		aquifer materials from various locations: Tinker, Carswell, Barksdale, Blytheville, Borden, Lula; not reported; std dev ±0.17		
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details		not reported; not reported; not reported		
Reference Substance, Reference Substance Results, and Percent Adsorption		not reported; not reported; not reported		
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type		Sorption coefficient (L/kg); column -; batch 0.14; Column sorption coefficient not reported; linear sorption isotherm assumed; local equilibrium was not established; appropriate correction for dispersion characteristics is needed for column studies based on breakthrough curves of CaCl2; sorbate dispersion limits the results obtained using frontal analysis.; not reported		
Partition Coefficient Type and Partition Coefficient Results		not reported; not reported		
Partition Coefficient Phase and Partition Coefficient Results		not reported; not reported		
Mass Balance		not reported		
EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	The study did not include or report specific control groups; batch tests were run for comparison.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors may influence the test substance due to volatility.
Domain 3: Test Conditions				
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Study Citation:	Macintyre, W. G., Stauffer, T. B. (1988). Liquid chromatography applications to determination of sorption on aquifer materials. Chemosphere 17(11):2161-2173.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254759			
Domain	Metric	EVALUATION		Comments
		Rating		
	Metric 5:	Test Method Suitability	Low	Test concentration was not explicitly reported; concentration reported as fraction of saturation solution.
	Metric 6:	Testing Conditions	Medium	Temperature and pH were not reported.
	Metric 7:	Testing Consistency	Medium	There were multiple variables adjusted in test conditions across study groups.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The intended outcome of interest was not reported for the main study methods.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported and accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, including lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		Uninformative		

Study Citation:	Masunaga, S., Urushigawa, Y., Yonezawa, Y. (1991). The behaviour of chlorobenzenes in Ise bay, estimated from their concentration in various environmental media. Water Research 25(3):289-297.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5254877

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Field Study; other: Guideline not specified, log Koc determination in environmental samples
Solvent, Reactivity, Storage, Stability	NA; NR; Seawater collected, filtered through 0.5 µm glass filters, adjusted to pH <3 with HCl, adsorbed onto Waters SEP-PAK C18 cartridge and stored at -20°C; suspended particles collected on glass fiber filters and stored at -20°C; bottom sediment cores collected in teflon tubes were stoppered at both ends and stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Ise Bay, Japan; NR; NA
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Samples collected from Ise Bay, Japan, in March 1988 included surface seawater, bottom seawater, bottom sediments, and a floating sediment trap left for 2 days; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 9.4°C; NA; Field measurements of surface seawater and suspended particulate
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; OC: 10.72%; Not reported
Bulk Density and Matrix Details	Not reported; 1.5 mg/L suspended particulate in water
Media, Recovery, and Statistics	Salinity: 31.19 % water; Average 30 - 50% (water), 36-84% (suspended particulate); Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc; 3.6; Detected concentrations in water: 27.9 ng/L and suspended particulate: 12.6 ng/L; 118 ng/Cg (levels in the bottom sediments relative to organic carbon); Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Not detected in water 10 cm above bottom; vertical transport of soluble test substance from surface to bottom was observed to be negligible, bottom suspended particulates were not observed to be equilibrated with bottom seawater
Mass Balance	Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	High
Domain 2: Test Design	Metric 3:	Study Controls	N/A
	Metric 4:	Test Substance Stability	High

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Study Citation:	Masunaga, S., Urushigawa, Y., Yonezawa, Y. (1991). The behaviour of chlorobenzenes in Ise bay, estimated from their concentration in various environmental media. Water Research 25(3):289-297.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5254877			
		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the substance
	Metric 6:	Testing Conditions	High	Conditions were reported separately for water and sediment samples, most of the appropriate conditions were reported
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently
	Metric 8:	System Type and Design	High	Field studies are assumed to be at equilibrium
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and addressed the outcomes of interest
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was addressed between different sample locations
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Target chemical concentrations were reported, analytical methods were suitable for detection of the target chemical
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical methods were not performed
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Masunaga, S., Yonezawa, Y., Urushigawa, Y., Fukui, M. (1996). Partitioning of chlorobenzenes between suspended particulates and water in coastal waters. Journal of Environmental Science and Health, Part A: Environmental Science and Engineering & Toxic and Hazardous Substance Control 31(4):887-903.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	660282

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Partition coefficient determined from field survey
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: Present in a mixture of 16 volatile and semi volatile organic compounds commonly present at hazardous waste sites
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; 32
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Concentrations measured in dissolved and suspended particulates of surface seawater at 40 stations in Ise Bay Japan between August 17-20, 1988
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; suspended particulates 15-20% OC; Not reported
Bulk Density and Matrix Details	Not reported; surface seawater
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Particulate adsorbed fraction = 1-2%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	log Koc; adsorbed concentration based on organic carbon; 3.69+/-0.48
Partition Coefficient Phase and Partition Coefficient Results	solids-water in suspended matter; Average from 32 samples
Mass Balance	Not reported

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1:	Test Substance Identity	High The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High The test substance source was reported in this monitoring study. The source and purity of analytical standard were not reported but characterized by GC/MS.
Domain 2: Test Design			
	Metric 3:	Study Controls	N/A The metric is not applicable to this study type.

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Study Citation:		Masunaga, S., Yonezawa, Y., Urushigawa, Y., Fukui, M. (1996). Partitioning of chlorobenzenes between suspended particulates and water in coastal waters. Journal of Environmental Science and Health, Part A: Environmental Science and Engineering & Toxic and Hazardous Substance Control 31(4):887-903.		
OECD Harmonized Template:		Adsorption and Desorption		
HERO ID:		660282		
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The method was appropriate for this type of study.
	Metric 6:	Testing Conditions	Low	Monitoring study; details on water conditions and particulate matter characteristics omitted.
	Metric 7:	Testing Consistency	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 8:	System Type and Design	High	The system was appropriate for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling details were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Variation from multiple monitoring spots noted but quantitative results were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reasonable and consistent with properties of test substance.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Masunaga, S., Yonezawa, Y., Urushigawa, Y., Fukui, M. (1996). Partitioning of chlorobenzenes between suspended particulates and water in coastal waters. Journal of Environmental Science and Health, Part A: Environmental Science and Engineering & Toxic and Hazardous Substance Control 31(4):887-903.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	660282

Domain	Metric	EVALUATION Rating	Comments
Overall Quality Determination		High	

* Related References: HSDB

Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5278134

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	Isotopes diluted with unlabeled compound, in methanol; NR; Stored in Teflon and glass vials at -20°C; NR
Radiolabel, Source, State, Purity	14-C labeled; Pathfinder Laboratories (St. Louis, MO) (isotope); Chem Service (West Chester, PA) or Aldrich Chemical (Milwaukee, WI) (unlabeled compound); NR; GC-MS confirmed >95% (isotopes), >98% (unlabeled compound)
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Sorbent analyzed, supernatant separated by centrifuge; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Test solution and sorbent added to 25 or 10 mL glass tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.031±0.001 % organic carbon; 11% clay sized fraction; 1.5±0.3 meq NH4+ / g
Bulk Density and Matrix Details	Not reported; Saturated zone sample of Borden Air Force Base (Ontario, Canada), < 0.5 mm size fraction
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Rotating box mixture, 360 inversions/hr, for 21-24 hr; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	foc Koc; 0.111; Fraction of organic carbon (foc) = 0.00031; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 0.340 L/kg (95% confidence interval: 0.31 - 0.37)
Partition Coefficient Phase and Partition Coefficient Results	other; r^2: 0.97
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was periodically verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	A concurrent negative control was not explicitly included. Statistical analysis suggests a control was used.

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Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5278134			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and were appropriate for the study
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil and test parameters (pH, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in measurements were addressed with statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

* Related References: Cited in ECHA

Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5278134

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	Isotopes diluted with unlabeled compound, in methanol; NR; Stored in Teflon and glass vials at -20°C; NR
Radiolabel, Source, State, Purity	14-C labeled; Pathfinder Laboratories (St. Louis, MO) (isotope); Chem Service (West Chester, PA) or Aldrich Chemical (Milwaukee, WI) (unlabeled compound); NR; GC-MS confirmed >95% (isotopes), >98% (unlabeled compound)
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Sorbent analyzed, supernatant separated by centrifuge; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Test solution and sorbent added to 25 or 10 mL glass tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.021±0.004 % organic carbon; 14% clay sized fraction; 2.5±0.2 meq NH4+ / g
Bulk Density and Matrix Details	Not reported; Saturated zone sample collected near Lula, OK, < 0.5 mm size fraction
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Rotating box mixture, 360 inversions/hr, for 21-24 hr; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	foc Koc; 0.075; Fraction of organic carbon (foc) = 0.00021; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 0.082 L/kg (95% confidence interval: 0.072 - 0.091)
Partition Coefficient Phase and Partition Coefficient Results	other; r^2: 0.94
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was periodically verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	A concurrent negative control was not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and were appropriate for the study

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Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5278134			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil and test parameters (pH, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in measurements were addressed with statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: Cited in ECHA

Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5278134

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	Isotopes diluted with unlabeled compound, in methanol; NR; Stored in Teflon and glass vials at -20°C; NR
Radiolabel, Source, State, Purity	14-C labeled; Pathfinder Laboratories (St. Louis, MO) (isotope); Chem Service (West Chester, PA) or Aldrich Chemical (Milwaukee, WI) (unlabeled compound); NR; GC-MS confirmed >95% (isotopes), >98% (unlabeled compound)
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Sorbent analyzed, supernatant separated by centrifuge; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Test solution and sorbent added to 25 to 20 mL glass tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.028±0.002 - 0.007 % organic carbon; 14 - 23% clay sized fraction; 4.5±0.4 meq NH4+ / g
Bulk Density and Matrix Details	Not reported; Saturated zone sample down to 600 cm depth near Lula, Pontotoc County, OK, < 0.25 - < 1 mm size fraction
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Rotating box mixture, 360 inversions/hr, for 21-24 hr; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	foc Koc; 0.100; Fraction of organic carbon (foc) = 0.00028; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 0.23 L/kg (95% confidence interval: 0.22 - 0.24)
Partition Coefficient Phase and Partition Coefficient Results	other; r^2: 1.00
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was periodically verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	A concurrent negative control was not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and were appropriate for the study

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Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5278134			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil and test parameters (pH, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in measurements were addressed with statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: Cited in ECHA

Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5278134

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified
Solvent, Reactivity, Storage, Stability	Isotopes diluted with unlabeled compound, in methanol; NR; Stored in Teflon and glass vials at -20°C; NR
Radiolabel, Source, State, Purity	14-C labeled; Pathfinder Laboratories (St. Louis, MO) (isotope); Chem Service (West Chester, PA) or Aldrich Chemical (Milwaukee, WI) (unlabeled compound); NR; GC-MS confirmed >95% (isotopes), >98% (unlabeled compound)
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Sorbent analyzed, supernatant separated by centrifuge; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Test solution and sorbent added to 25 to 20 mL glass tubes with Teflon-lined screw caps
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.19 - 0.26±0.01 % organic carbon; 13-14% clay sized fraction; 7.2±0.4 meq NH4+ / g
Bulk Density and Matrix Details	Not reported; Unsaturated zone samples collected to a depth of 675 cm below soil surface near Lula, Pontotoc County, OK, < 0.25 - < 1 mm size fraction
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Rotating box mixture, 360 inversions/hr, for 21-24 hr; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not reported; Not reported; Not reported; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 0.85 L/kg (95% confidence interval: 0.82 - 0.89)
Partition Coefficient Phase and Partition Coefficient Results	other; r^2: 0.99
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity was reported, and purity was periodically verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	A concurrent negative control was not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported and were appropriate for the study

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Study Citation:	Piwoni, M. D., Banerjee, P. (1989). Sorption of volatile organic solvents from aqueous solution onto subsurface solids. Journal of Contaminant Hydrology 4(2):163-179.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5278134			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some soil and test parameters (pH, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods addressed the outcomes of interest and used widely accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability in measurements were addressed with statistical techniques.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

* Related References: Cited in ECHA

Study Citation:	Poole, S. K., Poole, C. F. (1996). Model for the sorption of organic compounds by soil from water. Analytical Communications 33(12):417-419.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1486725			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	none; not specified; other: Non-guideline: model estimation for sorption to soil from water			
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported			
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported			
Sampling Frequency, Sampling Details, and Number of Replicates	NA; Not Reported; Not Reported			
pH, Test Temperature, Buffer, and Test Details	Not Reported; Not Reported; Not Reported; solvation parameter model; Koc: soil-water sorption coefficient (organic carbon basis)			
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, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not Reported; Not Reported; Not Reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not Reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; Not Reported; Not Reported; Not Reported			
Partition Coefficient Type and Partition Coefficient Results	log Koc; 2.50			
Partition Coefficient Phase and Partition Coefficient Results	soil-water; value taken from the literature to define a model for the estimation of log Koc			
Mass Balance	Not Reported			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The metric is not applicable.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	N/A	The metric is not applicable.
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Study Citation:	Poole, S. K., Poole, C. F. (1996). Model for the sorption of organic compounds by soil from water. Analytical Communications 33(12):417-419.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1486725			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 6:	Testing Conditions	N/A	The metric is not applicable.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable.
	Metric 8:	System Type and Design	N/A	The metric is not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Model results not reported for the target chemical; endpoint data is from cited source used to construct the model.
	Metric 18:	QSAR Models	Medium	Overall correlation coefficient = 0.982; Standard Error = 0.17

Overall Quality Determination**Low**

* Related References: Hong, H., Wang, L., Han, S., and Zou, G., Chemosphere, 1996, 32, 343. Prediction adsorption coefficients (KOC) for aromatic compounds by HPLC retention factors (K'). (HERO ID not found)

Study Citation:	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.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	645740

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Not Reported
Confidentiality, Type, Guideline	None; Calculation; other: chromatographic model for sorption and partitioning
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	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 (0.961 cm ³ /mol/100), excess molar refraction (0.872 cm ³ /10), solute's dipolarity/polarizability (0.78), solute's hydrogen-bond basicity (0.04), distribution constant between gas and n-hexadecane @ 298 K (4.518)
Matrix, Clay Silts and Organic Carbon, and CEC	other; Not applicable; Not applicable
Bulk Density and Matrix Details	Not applicable; Not applicable
Media, Recovery, and Statistics	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, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not applicable
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not applicable; Not applicable; Not applicable; Not applicable
Partition Coefficient Type and Partition Coefficient Results	Log K _{oc} ; Log K _{ow} ; Log K _{oc} ; 2.50; 3.43; 3.50
Partition Coefficient Phase and Partition Coefficient Results	soil-water (K _{oc}); octanol-water (K _{ow}); soil-air (K _{oc}); Not Reported
Mass Balance	Not applicable

EVALUATION

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

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Study Citation:	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.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	645740			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to this study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	660424

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	none; calculation; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; 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	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, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	soil adsorption coefficient; 347; not reported; not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	not reported; not reported
Partition Coefficient Phase and Partition Coefficient Results	not reported; not reported
Mass Balance	not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported in this secondary source.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported in this secondary source.
	Metric 4:	Test Substance Stability	Low	Details were not reported in this secondary source.
Domain 3: Test Conditions				

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Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	660424			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 5:	Test Method Suitability	Low	Details were not reported in this secondary source.
	Metric 6:	Testing Conditions	Low	Details were not reported in this secondary source.
	Metric 7:	Testing Consistency	Low	Details were not reported in this secondary source.
	Metric 8:	System Type and Design	Low	Details were not reported in this secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details were not reported in this secondary source.
	Metric 12:	Test Substance Purity	Low	Details were not reported in this secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details were not reported in this secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details were not reported in this secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details were not reported in this secondary source.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination**Low**

* Related References: HERO ID: 1265573 (not in distiller)Proceedings: International Conference on New Frontiers for Hazardous Waste Management (1985) Report Number 600985025

Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5243763

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified; sorption-desorption in Pahokee peat
Solvent, Reactivity, Storage, Stability	Methanol; NR; 4°C in glass bottles with Teflon-lined tops; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co. (St. Louis, MO); Liquid; >98%
Sampling Frequency, Sampling Details, and Number of Replicates	18-13 times; Sampled after 4 weeks (sorption) and 2 weeks (desorption) equilibration period; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 23°C; Not reported; Completely mixed batch reactors, flame sealed after addition of test material, mixed in a rotary shaker at 125 rpm
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 47.97±0.170 % C, 5.18±1.04 % H, 3.71±0.658 % N, 0.777±0.304 % black carbon, 16.20±0.18 % ash, 1.6 BC/TOC; Not reported
Bulk Density and Matrix Details	Not reported; Pahokee peat from Florida in aqueous solution
Media, Recovery, and Statistics	Not reported; Average system loss for reactors without sorbent < 4% initial concentration; no loss correction applied to sorption-desorption experiments. No biodegradation observed in other preliminary tests.; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Test substance-free background solution added for desorption
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc where solute concentration/aqueous solubility = 0.001, 0.01, and 0.5; 2.33 (sorption), 6.30 (desorption); 1.87 (sorption), 6.16 (desorption); 1.28 (sorption), 5.92 (desorption); Fit with Freundlich model and modified Freundlich equation; log Kf: 4.73±0.08
Partition Coefficient Type and Partition Coefficient Results	log Kfoc (corrected for organic carbon); 5.04
Partition Coefficient Phase and Partition Coefficient Results	other; Observed: Log Kf sorption: 0.237±0.146 Log Kf desorption: 0.500±0.241
Mass Balance	Calculated based on detected concentration in aqueous solution

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls for biodegradation and test substance non-sorption loss were included
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported.

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Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5243763			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance
	Metric 6:	Testing Conditions	Medium	Several testing conditions were not reported, including pH, CEC, other soil characteristics
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups
	Metric 8:	System Type and Design	High	Equilibrium was established and the test system was capable of maintaining the test substance concentration
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest
	Metric 12:	Test Substance Purity	High	The sampling methods address the outcomes of interest and used acceptable methods
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical mass balance was reported and analytical methods were suitable for detection and quantification of the target chemical
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods and Kf model applied was described and appropriate
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5243763			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified; sorption-desorption in Estuary sediments			
Solvent, Reactivity, Storage, Stability	Methanol; NR; 4°C in glass bottles with Teflon-lined tops; NR			
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co. (St. Louis, MO); Liquid; >98%			
Sampling Frequency, Sampling Details, and Number of Replicates	15-19 times; Sampled after 4 weeks (sorption) and 2 weeks (desorption) equilibration period; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 23°C; Not reported; Completely mixed batch reactors, flame sealed after addition of test material, mixed in a rotary shaker at 125 rpm			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 1.70±0.076 % C, 0.795±0.046 % H, 0.254±0.039 % N, 0.224±0.008 % black carbon, 13.2 BC/TOC; Not reported			
Bulk Density and Matrix Details	Not reported; Pearl River, China, Macao estuary sediments in aqueous solution			
Media, Recovery, and Statistics	Not reported; Average system loss for reactors without sorbent < 4% initial concentration; no loss correction applied to sorption-desorption experiments. No biodegradation observed in other preliminary tests.; Not Reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Test substance-free background solution added for desorption			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc where solute concentration/aqueous solubility = 0.001, 0.01, and 0.5; 0.92 (sorption), 47.2 (desorption); 1.33 (sorption), 58.2 (desorption); 2.45 (sorption), 83.0 (desorption); Fit with Freundlich model and modified Freundlich equation; log Kf: 3.63±0.08			
Partition Coefficient Type and Partition Coefficient Results	log Kfoc (corrected for organic carbon); 5.40			
Partition Coefficient Phase and Partition Coefficient Results	other; Observed: Log Kf sorption: -2.114±0.195 Log Kf desorption: -0.276±0.262			
Mass Balance	Calculated based on detected concentration in aqueous solution			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls for biodegradation and test substance non-sorption loss were included
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
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Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5243763			
Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance
	Metric 6:	Testing Conditions	Medium	Several testing conditions were not reported, including pH, CEC, other soil characteristics
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups
	Metric 8:	System Type and Design	High	Equilibrium was established and the test system was capable of maintaining the test substance concentration
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest
	Metric 12:	Test Substance Purity	High	The sampling methods address the outcomes of interest and used acceptable methods
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical mass balance was reported and analytical methods were suitable for detection and quantification of the target chemical
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods and Kf model applied was described and appropriate
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5243763

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified; sorption-desorption in Pahokee peat
Solvent, Reactivity, Storage, Stability	Methanol; NR; 4°C in glass bottles with Teflon-lined tops; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co. (St. Louis, MO); Liquid; >98%
Sampling Frequency, Sampling Details, and Number of Replicates	9 times; Sampled after 4 weeks (sorption) and 2 weeks (desorption) equilibration period; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 23°C; Not reported; Completely mixed batch reactors, flame sealed after addition of test material, mixed in a rotary shaker at 125 rpm
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 1.23±0.071 % C, 0.561±0.013 % H, 0.192±0.017 % N, 0.336±0.018 % black carbon, 27.2 BC/TOC; Not reported
Bulk Density and Matrix Details	Not reported; Pearl River, China, Macao estuary sediments in aqueous solution
Media, Recovery, and Statistics	Not reported; Average system loss for reactors without sorbent < 4% initial concentration; no loss correction applied to sorption-desorption experiments. No biodegradation observed in other preliminary tests.; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Test substance-free background solution added for desorption
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc where solute concentration/aqueous solubility = 0.001, 0.01, and 0.5; 1.56 (sorption), 97.0 (desorption); 1.93 (sorption), 121 (desorption); 2.75 (sorption), 175 (desorption); Fit with Freundlich model and modified Freundlich equation; log Kf: 3.54±0.07
Partition Coefficient Type and Partition Coefficient Results	log Kfoc (corrected for organic carbon); 5.44
Partition Coefficient Phase and Partition Coefficient Results	other; Observed: Log Kf sorption: -1.892±0.412Log Kf desorption: -0.108±0.505
Mass Balance	Calculated based on detected concentration in aqueous solution

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Controls for biodegradation and test substance non-sorption loss were included.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				

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Study Citation:	Ran, Y., Huang, W., Rao, P. S. C., Liu, D., Sheng, G., Fu, J. (2002). The role of condensed organic matter in the nonlinear sorption of hydrophobic organic contaminants by a peat and sediments. Journal of Environmental Quality 31(6):1953-1962.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5243763			
Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Several testing conditions were not reported, including pH, CEC, other soil characteristics.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the test system was capable of maintaining the test substance concentration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods address the outcomes of interest and used acceptable methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical mass balance was reported and analytical methods were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods and Kf model applied was described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Ran, Y., Xiao, B. H., Fu, J. M., Sheng, G. Y. (2003). Sorption and desorption hysteresis of organic contaminants by kerogen in a sandy aquifer material. Chemosphere 50(10):1365-1376.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5248629

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified, sorption
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Aldrich Chemical Co., Inc.; NR; >98%
Sampling Frequency, Sampling Details, and Number of Replicates	16 samples; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Reported elsewhere
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.021 wt.% TOC; Not reported
Bulk Density and Matrix Details	Not reported; Sandy Borden aquifer material; mineral grains and rock fragments of 850 - 75 um; carbonate rock fragments 13-17 wt. % bulk material
Media, Recovery, and Statistics	Not Reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; NR, reported elsewhere; NR, reported elsewhere
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	log Koc (mL/g OC); 3.52 and 3.25; where Cr = 0.001 and 0.05; 1.331±0.053
Desorption Type	log Kf (ug/g) from the revised Freundlich equation.; "log Kf OC = 5.01 ug/g OCn = 0.841±0.031R^2 = 0.982
Partition Coefficient Type and Partition Coefficient Results	other; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	Not reported
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	Controls were not reported but may have been reported elsewhere.
	Metric 4:	Test Substance Stability	N/A	Test preparation was not reported but may have been reported elsewhere.

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Study Citation:	Ran, Y., Xiao, B. H., Fu, J. M., Sheng, G. Y. (2003). Sorption and desorption hysteresis of organic contaminants by kerogen in a sandy aquifer material. Chemosphere 50(10):1365-1376.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5248629			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	Test conditions were reported elsewhere and could not be assessed.
	Metric 7:	Testing Consistency	High	The test was presumed to be conducted consistently across samples and study groups.
	Metric 8:	System Type and Design	N/A	Test condition details were reported elsewhere and could not be assessed.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	N/A	Sampling methods were reported elsewhere and could not be assessed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability was addressed between samples.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance was not reported, extraction efficiency and detection limits were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Freundlich isotherm calculations were appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Ran, Y., Xiao, B., Huang, W., Peng, P., Liu, D., Fu, J., Sheng, G. (2003). Organic compounds in the environment: kerogen in aquifer material and its strong sorption for nonionic organic pollutants. Journal of Environmental Quality 32(5):1701-1709.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5243765

EXTRACTION	
Parameter	Data
CASRN and Test Material	not reported; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	No; experimental; other: Equilibrium sorption using batch systems
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Aldrich Chemical Co. (St. Louis, MO); Aqueous solution; spectrophotometric grade >98% Notes: DCB
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; not reported; not reported
pH, Test Temperature, Buffer, and Test Details	pH 7 to 8; not reported; pH adjusted with NaHCO ₃ (5 mg/L); sorption equilibria measured from 42 days; controls were included, results showed less than 4% loss; headspace loss considered in mass balance when it was greater than 0.2% of total
Matrix, Clay Silts and Organic Carbon, and CEC	sand; Sandy aquifer material: TOC = 0.021% (w/w) and isolated soil and sediment organic matter (SOM) organic carbon content = 0.735% (w/w); not reported
Bulk Density and Matrix Details	not reported; Sandy aquifer material from Borden, Ontario and isolated soil and sediment organic matter (SOM) where evaluated.
Media, Recovery, and Statistics	sediment organic matter; Greater than 96%; not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Freundlich adsorption coefficient; Not Reported; Not Reported; Borden, Ontario sand: Log K _f = -2.85±0.25, n = 0.84, R-squared = 0.982. Isolated soil and sediment organic matter (SOM): Log K _f = -0.72±0.08, n = 0.83, R-squared = 1.00.
Partition Coefficient Type and Partition Coefficient Results	Single-point organic carbon-normalized sorption coefficient (K _{oc}); Borden, Ontario sand: K _{oc} values for 3 levels representing 0.1, 5, and 75% of the aqueous solubility Ce/Cs = 0.001, Ce/Cs = 0.05, and Ce/Cs = 0.75 (Ce, aqueous phase concentration; Cs, aqueous solubility) were determined to be 3.30, 1.77, and 1.15, respectively. Isolated soil and sediment organic matter (SOM): K _{oc} values for 3 levels representing 0.1, 5, and 75% of the aqueous solubility Ce/Cs = 0.001, Ce/Cs = 0.05, and Ce/Cs = 0.75 (Ce, aqueous phase concentration; Cs, aqueous solubility) were determined to be 11.98, 6.16, and 3.89, respectively.
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; K _{oc} calculated using TOC of sorbents and Freundlich parameters (K _f - Freundlich capacity parameter; n - isotherm linearity factor)
Mass Balance	18.7% of the TOC of the original sandy material

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

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Study Citation:	Ran, Y., Xiao, B., Huang, W., Peng, P., Liu, D., Fu, J., Sheng, G. (2003). Organic compounds in the environment: kerogen in aquifer material and its strong sorption for nonionic organic pollutants. Journal of Environmental Quality 32(5):1701-1709.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5243765			
Domain	Metric	EVALUATION		Comments
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were reported and accounted for in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this type of study.

Overall Quality Determination**High**

Study Citation:	Ran, Y., Xing, B. S., Rao, P. S. C., Sheng, G. Y., Fu, J. M. (2005). Sorption kinetics of organic contaminants by sandy aquifer and its kerogen isolate. Environmental Science & Technology 39(6):1649-1657.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3562100

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	in 0.005 M CaCl ₂ solutions; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Aldrich Chemical Co., Inc.; NR; >98%
Sampling Frequency, Sampling Details, and Number of Replicates	1, 2, 4, 7, 23, 42 d; Supernatant analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Glass centrifuge bottles sealed with screw caps, Teflon-lined silicone septa, and flame-sealed glass ampules at 0.1, 5, and 75% aqueous solubility
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.736 wt % organic carbon; Not reported
Bulk Density and Matrix Details	Not reported; Kerogen isolate from Borden aquifer material
Media, Recovery, and Statistics	Water; Not reported; Linear regression produced with SYSTAT software, v.8.0
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; Rotary shaker at 125 rpm in horizontal mode, disturbed by hand 3-4x/d, solids allowed to settle for 2 d after mixing; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; K _{oc} : 2.48 - 10.5, 2.75 - 11.3, 2.78 - 10.1, 2.69 - 10.5, 2.80 - 10.2, 3.89- 12.0; At 1, 2, 4, 7, 23, and 42 d contact time. Log K _{oc} increased with decreasing % of aqueous solubility present (0.1 > 5 > 75% aqueous solubility)
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Freundlich model log K _f : -0.683±0.050, -0.658±0.062, -0.749±0.106, -0.710±0.057, -0.742±0.037, -0.720±0.040
Partition Coefficient Phase and Partition Coefficient Results	other; At 1, 2, 4, 7, 23, and 42 d contact time $n = 0.782 \pm 0.012$, 0.786 ± 0.015 , 0.806 ± 0.027 , 0.795 ± 0.016 , 0.805 ± 0.010 , 0.830 ± 0.024 $R^2 = 0.999$, 0.997, 0.989, 0.994, 0.998, 0.997
Mass Balance	Not Reported

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

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Study Citation:	Ran, Y., Xing, B. S., Rao, P. S. C., Sheng, G. Y., Fu, J. M. (2005). Sorption kinetics of organic contaminants by sandy aquifer and its kerogen isolate. Environmental Science & Technology 39(6):1649-1657.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	3562100			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Test conditions (pH and temperature) and matrix conditions (only % organic matter reported) were omitted.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	Equilibrium was established and the test system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and used accepted approaches.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variation was addressed by statistical techniques between samples.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical method not reported, extraction recovery and mass balance not reported, limits of detection not reported. These details may be reported elsewhere.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Partitioning calculations and statistical software were reported and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the reasonable approach to derive them.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Sacan, M. T., Balcioglu, I. A. (1996). Prediction of the soil sorption coefficient of organic pollutants by the characteristic root index model. Chemosphere 32(10):1993-2001.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1968187

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; QSAR; other: Sorption predictive model using quantitative structure-property relationships technique
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; 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; 36 chemicals were included in the data set; characteristic root index (CRI) model and regression of log Koc relationship represented by: $\log Koc = (\pm 0.034)1.034CRI = (\pm 0.113)0.441$
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not applicable; Not applicable
Bulk Density and Matrix Details	Not applicable; Not applicable
Media, Recovery, and Statistics	Not applicable; Not applicable; Summary statistics for correlation of experimental vs calculated log Koc of 36 compounds: $r = 0.982$, $r^2 = 0.964$, $s = 0.22$ and $F = 912$
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not applicable; Not applicable; Not applicable
Reference Substance, Reference Substance Results, and Percent Adsorption	Not applicable; Not applicable; Not applicable
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not applicable; Not applicable; Not applicable; Not applicable
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	log Koc observed; log Koc predicted; 2.54; 2.79
Partition Coefficient Phase and Partition Coefficient Results	soil-water; CRI 2.2728
Mass Balance	Not applicable

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

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Study Citation:	Sacan, M. T., Balcioglu, I. A. (1996). Prediction of the soil sorption coefficient of organic pollutants by the characteristic root index model. Chemosphere 32(10):1993-2001.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1968187			
Domain		Metric	EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Smith, J. A., Deitsch, J. J. (2004). Distributed-rate model configured in series to simulate sorption of organic pollutants to natural soil. Bulletin of Environmental Contamination and Toxicology 72(1):94-100.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5249250

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Calculation; other: Distributed-Rate model based on parameters derived from experimental study results in 4 natural soils
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not specified; Not specified; Not specified
pH, Test Temperature, Buffer, and Test Details	Not reported; 20°C; Not reported; Sorption to soils conducted in a previous study. Likely reported in Deitsch (1998) and Deitsch et al. (2000)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 0.53-14.6% organic carbon content; Not reported
Bulk Density and Matrix Details	Not reported; Picatinny Peat, Picatinny Sand, Woodburn soil, ACE silty clay
Media, Recovery, and Statistics	water; 98% (average); percent error reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported, blanks included in experimental study; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Not reported; No partition coefficient results were reported.
Partition Coefficient Phase and Partition Coefficient Results	Not reported; Mass-transfer rate coefficients modeled using a Log normal model and gamma model based on experimental data from previous studies.
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Smith, J. A., Deitsch, J. J. (2004). Distributed-rate model configured in series to simulate sorption of organic pollutants to natural soil. Bulletin of Environmental Contamination and Toxicology 72(1):94-100.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5249250			
Domain		Metric	EVALUATION Rating	Comments
	Metric 4:	Test Substance Stability	N/A	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	N/A	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	Several of the test conditions were not reported which may have an impact on the study results.
	Metric 7:	Testing Consistency	N/A	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	Equilibrium was established; however, limited details were reported to determine if the system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology did not address the specific intended outcome of interest - sorption/desorption.
	Metric 12:	Test Substance Purity	N/A	Some sampling method details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques were considered with minor omissions and the omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	Transformation products and mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are generally consistent with the chemical characteristics.

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Study Citation:	Smith, J. A., Deitsch, J. J. (2004). Distributed-rate model configured in series to simulate sorption of organic pollutants to natural soil. Bulletin of Environmental Contamination and Toxicology 72(1):94-100.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5249250

		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 18:	QSAR Models	Low	The metric is not applicable to the study type.

Overall Quality Determination

Medium

* Related References: Primary sources cited for the experimental data: Deitsch et al. (2000) Environ Sci Technol 34:1469-1476 - HERO ID 3545787, data extracted in distiller; Deitsch, JJ; Smith, JA (1999) - HERO ID 3545786, data extracted in distiller; Deitsch JJ (1998) Doctoral dissertation - HERO ID not available at time of extraction.

Study Citation:	Stauffer, T. B., Macintyre, W. G. (1986). Sorption of low-polarity organic compounds on oxide minerals and aquifer material. Environmental Toxicology and Chemistry 5(11):949-955.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1486153			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms on gibbsite and goethite			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	14C-labeled; 11.58 mCi/mmol of 98% chemical purity; Pathfinder Laboratories, Inc.; NR; chemical purity confirmed by HPLC: >99.0%; 101.7% radiopurity			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; soil isotherms were determined using an extraction procedure; Not reported			
pH, Test Temperature, Buffer, and Test Details	Al2O3: 4.2, 6.8, 10.0; gibbsite: 9.4; goethite: 3.5, 7.1, 11.5; Apalachee: 4.1, 6.3, 10.8; 22.5±1C; Not Reported; Vials shaken for 24h and centrifuged for 10 min			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; %OC: Al2O3: 0.008; gibbsite: <0.01; goethite: not analyzed; Apalachee: 1.4%; Apalachee: 18.6 meq/100g			
Bulk Density and Matrix Details	not reported; BET surface area: Al2O3 19.6 m2/g; gibbsite = 11.9 m2/g; goethite = 9.4 m2/g; Apalachee: 24.5 m2/g Alumina polishing powder (Al2O3; Union Carbide, Indianapolis, IN), Gibbsite (Hydral 705; Alcoa, Alcoa Center, PA), Pure yellow iron oxide (goethite; Pfizer New York, NY)			
Media, Recovery, and Statistics	Water; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported			
Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	sorption coefficient K (L/kg); Al2O3: 0.07±0.06, 0.13±0.05, 0.18±0.03; gibbsite: 0.26±0.08; goethite: 1.31±0.08, 1.40±0.11, 0.34±0.07; Apalachee: 6.13±0.40, 5.40±0.12, 2.32±0.51; At Al2O3 pH: 4.2, 6.8, 10.0; at gibbsite pH 9.4; at goethite pH: 3.5, 7.1, 11.5.; Apalachee: 4.1, 6.3, and 10.8, respectively; Not reported			
Partition Coefficient Type and Partition Coefficient Results	Koc (K divided by the fraction of organic carbon in Apalachee soil); 385			
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Apalachee soil reported			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not included.
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Study Citation:	Stauffer, T. B., Macintyre, W. G. (1986). Sorption of low-polarity organic compounds on oxide minerals and aquifer material. Environmental Toxicology and Chemistry 5(11):949-955.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1486153			
Domain		EVALUATION		Comments
	Metric	Rating		
	Metric 4:	Test Substance Stability	Medium	Preparation, stability and storage of test samples were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported clearly, with minor omissions.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	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 Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details were reported regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information on analytical methods and lack of controls, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

* Related References: Cited in ECHA

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1485614

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 40.8% sand, 4.7% clay, 53.1% silt; TOC = 0.096±0.01 g/kg; 39.95 cmol(+)/kg
Bulk Density and Matrix Details	surface area 9.2±0.1 m ² /g; Tinker aquifer (Oklahoma City, OK)
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	K (L/kg); 0.10±0.05; coefficient of determination R ² = 0.73; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	apparent K _{oc} on aquifer materials; 1040
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Tinker
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions				

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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1485614

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 74.8% sand, 18.2% silt; TOC = 0.27±0.01 g/kg; 13.91 cmol(+)/kg
Bulk Density and Matrix Details	surface area 9.5±0.1 m ² /g; Carswell aquifer (Fort Worth, TX)
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 0.18±0.06; coefficient of determination R ² = 0.84; Not reported
Partition Coefficient Type and Partition Coefficient Results	apparent K _{oc} on aquifer materials; 680
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Carswell
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.

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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 52.3% sand, 41.5% silt; TOC = 1.05±0.06 g/kg; 64.36 cmol(+)/kg			
Bulk Density and Matrix Details	surface area 7.5±0.1 m2/g; Barksdale aquifer (Shreveport, LA)			
Media, Recovery, and Statistics	Not reported; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 0.30±0.05; coefficient of determination R2 = 0.91; Not reported			
Partition Coefficient Type and Partition Coefficient Results	apparent Koc on aquifer materials; 280			
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Barksdale			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.
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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1485614

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 67.8% sand, 3.5% clay, 27.3% silt; TOC = 1.56±0.04 g/kg; 32.98 cmol(+)/kg
Bulk Density and Matrix Details	surface area 8.0±0.1 m ² /g; Blytheville aquifer (Blytheville, AR)
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 1.28±0.14; coefficient of determination R ² = 0.97; Not reported
Partition Coefficient Type and Partition Coefficient Results	apparent K _{oc} on aquifer materials; 820
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Blytheville
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.

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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 98.2% sand, 1.1% silt; TOC = 0.11±0.03 g/kg; 28.11 cmol(+)/kg			
Bulk Density and Matrix Details	surface area 0.2 m2/g; Traverse City aquifer (Traverse City, MI)			
Media, Recovery, and Statistics	Not reported; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 0.36±0.04; coefficient of determination R2 = 0.94; Not reported			
Partition Coefficient Type and Partition Coefficient Results	apparent Koc on aquifer materials; 3200			
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Traverse City			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.
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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 96.0% sand,2.0% clay, 2.0% silt; TOC = 0.16±0.02 g/kg; NA			
Bulk Density and Matrix Details	surface area 0.3 m2/g; Borden aquifer (Borden, Ontario)			
Media, Recovery, and Statistics	Not reported; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 0.30±0.04; coefficient of determination R2 = 0.88; Not reported			
Partition Coefficient Type and Partition Coefficient Results	apparent Koc on aquifer materials; 1935			
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Borden			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.
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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.				
OECD Harmonized Template:	Adsorption and Desorption				
HERO ID:	1485614				
Domain		Metric	EVALUATION		Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.	
	Metric 8:	System Type and Design	High	Equilibrium was established.	
Domain 4: Test Organisms					
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.	
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.	
Domain 5: Outcome Assessment					
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.	
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.	
Domain 6: Confounding/Variable Control					
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.	
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.	
Domain 7: Data Presentation and Analysis					
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.	
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.	
Domain 8: Other					
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.	
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.	
Overall Quality Determination			Medium		

Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; other: Sorption isotherms determined by batch equilibrium			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	14C labeled; 428.5 GBq/mol; Pathfinder Laboratories; NR; 98% chemical purity Notes: ODCB			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not reported; Not reported			
pH, Test Temperature, Buffer, and Test Details	Not reported; 22.5±1C; Not reported; Not reported			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 91.0% sand, 3.4% clay, 5.6% silt; TOC = 0.20±0.01 g/kg; 9.83 cmol(+)/kg			
Bulk Density and Matrix Details	surface area 11.8±0.1 m2/g; Lula aquifer (Lula, OK)			
Media, Recovery, and Statistics	Not reported; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported			
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	K (L/kg); 0.14±0.09; coefficient of determination R2 = 0.70; Not reported			
Partition Coefficient Type and Partition Coefficient Results	apparent Koc on aquifer materials; 700			
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Lula			
Mass Balance	Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	High	Source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Controls were not reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Test conditions were reported.
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Study Citation:	Stauffer, T. B., Macintyre, W. G., Wickman, D. C. (1989). Sorption of nonpolar organic chemicals on low-carbon-content aquifer materials. Environmental Toxicology and Chemistry 8(10):845-852.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1485614			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Limited details regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited details regarding this metric.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			Medium	

Study Citation:	Ten Hulscher, T. E. M., Vrind, B. A., Van den Heuvel, H., Van der Velde, L. E., Van Noort, P. C. M., Beurskens, J. E. M., Govers, H. A. J. (1998). Triphasic desorption of highly resistant chlorobenzenes, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons in field contaminated sediment. Environmental Science & Technology 33(1):126-132.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1487082

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	No; Experimental; other: desorption kinetics and partitioning in long term field contaminated sediment cores and top layer sediment measured by gas-purging
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Field samples; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	not reported; not reported; 2
pH, Test Temperature, Buffer, and Test Details	not reported; 20.0±0.05°C; not reported; Duplicate sediment samples of about 25 g wet weight were suspended in thermostated purge vessels with a Tenax trap system; gas flow = 600-1000 mL/min; duration: 624 hours
Matrix, Clay Silts and Organic Carbon, and CEC	other; organic carbon = 6.71% (core) and 4.3% (top sediment); not reported
Bulk Density and Matrix Details	not reported; Water with a composition similar to freshwater was used
Media, Recovery, and Statistics	Freshwater sediment from the 40- 120 cm section core sampled in March 1995 at Lake Ketelmeer, The Netherlands; 91-121%; reported with results
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	not reported; not reported; not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	not reported; Desorption from sediment was triphasic: fast, slowly, and very slowly; Desorption rate constants (10-3 h-1) top sediments = 8.0Å±0.6 and 5.7Å±0.5 for slowly desorbing fractions, 0.131Å±0.003 and 0.093Å±0.004 for very slowly desorbing fractions; sediment core = 0.55Å±0.03 and 0.45Å±0.02 for very slowly desorbing fractions.; Concentration in the top layer = 367 µg/kg dw, sediment core = 580 and 630 µg/kg dw; concentration in water declined during the first 100-400 h of purging; not reported
Desorption Type	not reported; not reported
Partition Coefficient Type and Partition Coefficient Results	not reported; not reported
Partition Coefficient Phase and Partition Coefficient Results	natural water-sediment; not reported
Mass Balance	150±26%

EVALUATION			
Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High
	Metric 2:	Test Substance Purity	Medium
			The test substance was identified. Contaminated field samples; analytical standard not reported.
Domain 2: Test Design	Metric 3:	Study Controls	N/A
			The metric is not applicable to this study type.

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Study Citation:	Ten Hulscher, T. E. M., Vrind, B. A., Van den Heuvel, H., Van der Velde, L. E., Van Noort, P. C. M., Beurskens, J. E. M., Govers, H. A. J. (1998). Triphasic desorption of highly resistant chlorobenzenes, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons in field contaminated sediment. Environmental Science & Technology 33(1):126-132.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1487082			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Sediment characteristics not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate for the test.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between duplicates were not reported in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some data and analytical detail were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5113349

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; Not Reported
Confidentiality, Type, Guideline	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
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 Statistics	Not Reported; Not Reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not Reported; Not Reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not Reported; Not Reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	log Koc; 2.46-3.67
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (i.e., established nomenclature, CASRN, or structure reported, including information on the specific form tested [particle characteristics for solid-state materials, salt or base, valence state, isomer, etc.] for materials that may vary in form, or submitting company's code name with supporting confirmatory documentation) and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.

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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5113349			
Domain		EVALUATION		Comments
		Metric	Rating	
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, more study details expected to be in the primary source.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, more study details expected to be in the primary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Study details not reported but expected to be appropriate. More details expected in the primary source.
	Metric 6:	Testing Conditions	Medium	Testing conditions not reported but expected to be appropriate. More details expected in the primary source.
	Metric 7:	Testing Consistency	Medium	Testing conditions not reported but expected to be consistent. More details expected in the primary source.
	Metric 8:	System Type and Design	Medium	The system type and design were not reported but expected to be appropriate. More details expected in the primary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	No methodology was reported but more data expected to be in the primary source.
	Metric 12:	Test Substance Purity	Medium	No sampling method reported but expected to be appropriate. More details expected in the primary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	More details expected to be available in the primary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	No analytical method reported but expected to be appropriate. More details expected to be in the primary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
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Study Citation:	U.S. EPA, (2009). Initial risk-based prioritization of high production volume (HPV) chemicals: Chlorobenzenes category: Sponsored chemicals: Monochlorobenzene (CASRN 108-90-7) (CA Index Name: Benzene, chloro-); 1,2-Dichlorobenzene (CASRN 95-50-1) (CA Index Name: Benzene, 1,2-dichloro-); 1,3-Dichlorobenzene (CASRN 541-73-1) (CA Index Name: Benzene, 1,3-dichloro-); 1,2,3-Trichlorobenzene (CASRN 87-61-6) (CA Index Name: Benzene, 1,2,3-trichloro-).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5113349

		EVALUATION		
Domain	Metric	Rating		Comments
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination

Medium

* Related References: cited from Synthetic Organic Chemical Manufacturers Association (SOCMA) Chlorobenzene Producers Association (CPA). March 31, 2003. Revised Robust Summary and Test Plan for Chlorobenzenes Category. Data can also be found NICNAS. 2001. Ortho-Dichlorobenzene. Priority Existing Chemical Assessment Report No. 14

Study Citation:	Uchrin, C. G., Lewis, T. E. (1988). Modelling sorption and degradation of toxic and hazardous substances in ground water systems. Studies in Environmental Science 34(C):153-167.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5247211

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Guideline not specified, sorption batch experiments
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NA; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 5 mL aliquot taken from each vial; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21°C; Not reported; 5 g soil saturated with 0.5 - 5.0 mL water added to 50 mL screw cap test tubes, test substance added, sealed with Teflon lined caps and shaken.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 2.0% clay/8.0% silt/90.0% sand/4.4% organic matter; Not reported
Bulk Density and Matrix Details	1.78; Cohansey soil from Chatsworth, NJ; 0.55 porosity
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not Reported; Liquid centrifugate drained and replaced with 25 mL clean water and agitated for 24 h
Reference Substance, Reference Substance Results, and Percent Adsorption	Blank, without soil; Not Reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Linear; Langmuir; Freundlich; 121; 141; 44.4; $r^2 = 0.21, 0.97, \text{ and } 0.95$, respectively; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Linear; 121
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Linear coefficient reported in conclusions as final result
Mass Balance	Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	A control without soil was included and tested valid.
	Metric 4:	Test Substance Stability	Medium	No details on test substance preparation or storage conditions were reported.

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Study Citation:	Uchrin, C. G., Lewis, T. E. (1988). Modelling sorption and degradation of toxic and hazardous substances in ground water systems. Studies in Environmental Science 34(C):153-167.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5247211			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions were reported for the study.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	The system reached equilibrium and was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the outcomes of interest
	Metric 12:	Test Substance Purity	High	The sampling methods were appropriate and addressed the outcome methodology
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variability and uncertainty were not explicitly addressed in the study
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods were suitable for detection and quantification of the test substance, extraction efficiency and mass balance were not reported
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Adsorption coefficient calculation was described clearly
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Van Zoest, R., Van Eck, G. T. M. (1991). Occurrence and behaviour of several groups of organic micropollutants in the Scheldt estuary. Science of the Total Environment 103(1):57-71.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5471921

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	no; monitoring study; other: monitoring study used to calculate sediment-water partition coefficients
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; natural waters; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	Sampling conducted between August 1987 and Jan 1989 at sampling stations along the Scheldt estuary.; Four stations were sampled 5x; 4 dm3 water samples and "some" grams of suspended particulate matter were collected.; not reported
pH, Test Temperature, Buffer, and Test Details	not reported; ambient; salinity: Hoboken = 0.45, Buoy 87 = 6.1, Hansweert = 13.4, Vlissingen = 25.8; Monitoring of heavily polluted Scheldt estuary, major source for contaminants: River Scheldt; residence time of estuarine water is 2 to 3 months
Matrix, Clay Silts and Organic Carbon, and CEC	other; not reported; not reported
Bulk Density and Matrix Details	not reported; suspended particulate matter samples
Media, Recovery, and Statistics	natural waters; >80%; not reported
Transformation Products, Equilibrium	not reported; not reported; not reported
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	not reported; not reported; not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	not reported; not reported; not reported; not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Koc; log Koc (reported for both 1,2-DCB and 1,4-DCB combined) = 3.5 (median) 3-4 (range)
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Data from two monitoring campaigns used to calculate sediment-water partition coefficients. Concentrations at sampling stations (median, range): Hoboken = 46, 20-72 ng/g (particulate) and 108, below MLD-215 ng/dm3 (dissolved); Buoy 87 = 22, 18-26 ng/g (particulate) and ND, ND-30 ng/dm3 (dissolved); Hansweert = 8, ND-16 ng/g (particulate) and ND, ND-ND ng/dm3 (dissolved); Vlissingen = 7, ND-14 ng/g (particulate) and ND, ND-ND ng/dm3 (dissolved).
Mass Balance	Not Reported

EVALUATION

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

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Study Citation:	Van Zoest, R., Van Eck, G. T. M. (1991). Occurrence and behaviour of several groups of organic micropollutants in the Scheldt estuary. Science of the Total Environment 103(1):57-71.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	5471921			
		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	Target chemical concentrations in the natural environment.
	Metric 6:	Testing Conditions	Medium	Site conditions, water and sediment characteristics, were not reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Equilibrium is assumed in field studies; however, results indicated non-equilibrium conditions based on comparison using Karickhoff's (1981) empirical relation.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Results not specific to target isomer.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables affecting equilibrium were addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details for second sampling campaign were not reported; results were used for calculations.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Results were not presented for specific target chemical.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this type of study.

Overall Quality Determination

Uninformative

Study Citation:	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1010287

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: batch equilibrium soil sorption study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: Present in a mixture of 16 volatile and semi volatile organic compounds commonly present at hazardous waste sites
Sampling Frequency, Sampling Details, and Number of Replicates	18h; Sampling design: 16 chemical, 2 soils, 5 concentrations (100, 500, 550, 600 and 650 ug/g soil). Samples stored at 4°C for 14d prior to analysis; 6
pH, Test Temperature, Buffer, and Test Details	4.43±0.03; Not reported; Not reported; Zero headspace extractor rotated at 30 rpm for 18h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; organic C content =0.66 ± 0.04%; Not reported
Bulk Density and Matrix Details	Not reported; McLaurin sandy loam, Stone County, MS. Air dried; sieved to 2 mm
Media, Recovery, and Statistics	soil; 76.0 +/- 2.0%; Performed; associate Kp(observed) Kp (predicted from Kow)
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Reported to be achieved with no supporting details; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; external standards for extraction and analytical procedures; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Koc; 797.1 +/- 184.4; Weighted mean Koc: 982.2, predicted Koc: 1,479; Not reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 5.261 +/- 1.217
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Based on 6 experimental determinations; predicted Kp 0.76
Mass Balance	Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively and the specific form characterized, where applicable.
	Metric 2:	Test Substance Purity	N/A	The test substance source and purity were cited to another reference.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	A concurrent control was not needed for the adsorption experiment.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.

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Study Citation:	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1010287			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were monitored, reported, and appropriate for the method, some details were omitted.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	Medium	Equilibrium was reported but without supporting details.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed soil adsorption.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study. The differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions. The minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical, extraction efficiency, percent recovery, or mass balance were reported and analytical methods used were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1010287

Domain	Metric	EVALUATION Rating	Comments
Overall Quality Determination		High	

Study Citation:	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1010287

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; other: batch equilibrium soil sorption study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: Present in a mixture of 16 volatile and semi volatile organic compounds commonly present at hazardous waste sites
Sampling Frequency, Sampling Details, and Number of Replicates	18h; 16 chemicals, 2 soils, 5 concentrations (100, 500, 550, 600 and 650 ug/g soil). Samples stored at 4°C for 14d prior to analysis; 4
pH, Test Temperature, Buffer, and Test Details	4.97±0.08; Not reported; Not reported; Zero headspace extractor rotated at 30 rpm for 18h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 1.49±0.06% OC; Not reported
Bulk Density and Matrix Details	Not reported; Captina silt loam; Roane County, TN. Air dried and sieved to 2 mm
Media, Recovery, and Statistics	soil; 68 +/- 3.4%; Performed; associate Kp(observed) Kp (predicted from Kow)
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Reported to be achieved with no supporting details; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; external standards for extraction and analytical procedures; Not reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Koc; 1,260 +/- 216.3; Weighted mean Koc: 982.2, predicted Koc: 1,479; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kp; 18.770 +/- 3.223
Partition Coefficient Phase and Partition Coefficient Results	soil-water; Based on 4 experimental determinations; predicted Kp: 22.0
Mass Balance	limited details provided

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	N/A	The test substance source and purity were cited to another reference.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	A concurrent control was not needed for the adsorption experiment.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Walton, B. T., Hendricks, M. S., Anderson, T. A., Griest, W. H., Merriweather, R., Beauchamp, J. J., Francis, C. W. (1992). Soil sorption of volatile and semivolatile organic compounds in a mixture. Journal of Environmental Quality 21(4):552-558.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1010287			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 6:	Testing Conditions	Medium	Testing conditions were monitored, reported, and appropriate for the method, some details were omitted.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	Medium	Equilibrium was reported but without supporting details.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed soil adsorption.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study. The differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions. The minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical, extraction efficiency, percent recovery, or mass balance were reported and analytical methods used were suitable for detection and quantification of the target chemical.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

Study Citation:	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	4933297

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; o-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; Samples collected up and downstream discharge point of sewage treatment works to determine fate and transport of pollutants
Solvent, Reactivity, Storage, Stability	NA; NR; River filter papers stored at -20°C, filtered water samples stored at 4°C, sediment stored in glass jars with aluminum foil lined screw tops and stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; River samples collected upstream and downstream from discharge point of sewage treatment works. River surface sediment samples collected from banks and midstream above and below discharge point.; NA; NA
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 10 min composite grab samples collected from the river, suspended particles filtered and retained for analysis up and downstream of discharge point; bank and midstream sediment samples collected up and downstream of discharge point.; Not reported
pH, Test Temperature, Buffer, and Test Details	8.0 (upstream), 7.7 (downstream), 7.2 (effluent); 6.9 (upstream), 8.5 (downstream), 11.3 (sewage effluent)°C; Not reported; Water and filtered suspended particulate samples collected and analyzed to determine substance partitioning
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; OC: 15.96 % (upstream), 31.46% (downstream), 40.67% (effluent); Not reported
Bulk Density and Matrix Details	Not reported; Suspended particulate
Media, Recovery, and Statistics	River water or sewage treatment plant effluent; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	log Koc; 3.00; Calculated based on log Koc = 0.989 log Kow - 0.346, where log Kow = 3.38; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Log Kp; 2.48
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Water concentration: 5 - 50 ng/L; calculated particle concentration: 0.0015 - 0.015 ng/mgCalculated based on Koc = foc x Kp
Mass Balance	Substance was not detected in suspended particulate, concentrations are based on calculations

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 A general description of the study site was reported.
Domain 2: Test Design			
	Metric 3:	Study Controls	Medium Field or analytical blanks were not explicitly included.

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Study Citation:	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	4933297			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 4:	Test Substance Stability	High	Sample collection and preparation was reported and acceptable.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study was acceptable for the test substance.
	Metric 6:	Testing Conditions	High	Temperature, pH, and organic carbon content were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed the determination of Koc and Kp values.
	Metric 12:	Test Substance Purity	Medium	Sampling methods addressed the outcomes of interest however frequency was not reported and temporal variation cannot be addressed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	GC-FID and GC-MS detected concentrations were comparable. Representativeness of samples was assessed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical methods were reported, however limits of detection were not reported and percent recovery was not conducted. Partitioning was not differentiated between up and downstream. The test substance was not detected in particulate or sediment, which resulted in these concentrations being estimated by mass balance calculations and log Kow relationships to partitioning.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The test substance was not detected in the solid phase; the field study concentrations were based on mass balance calculations and previously observed log Koc and Kp relationships to log Kow. Because the field partitioning values are unverifiable estimates, the overall quality of this study value is low.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
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Study Citation:	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	4933297

Domain	Metric	EVALUATION Rating	Comments
Overall Quality Determination		High	

Study Citation:	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	4933297			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; o-DCB			
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; Samples collected up and downstream discharge point of sewage treatment works to determine fate and transport of pollutants			
Solvent, Reactivity, Storage, Stability	NA; NR; River filter papers stored at -20°C, filtered water samples stored at 4°C, sediment stored in glass jars with aluminum foil lined screw tops and stored at -20°C; NR			
Radiolabel, Source, State, Purity	NA; River samples collected upstream and downstream from discharge point of sewage treatment works. River surface sediment samples collected from banks and midstream above and below discharge point.; NA; NA			
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; 10 min composite grab samples collected from the river, suspended particles filtered and retained for analysis up and downstream of discharge point; bank and midstream sediment samples collected up and downstream of discharge point.; Not reported			
pH, Test Temperature, Buffer, and Test Details	8.0 (upstream), 7.7 (downstream), 7.2 (effluent); 6.9 (upstream), 8.5 (downstream), 11.3 (sewage effluent)°C; Not reported; Water and filtered suspended particulate samples collected and analyzed to determine substance partitioning			
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; OC: 1.28±0.10% (upstream), 0.54±0.07% (downstream); Not reported			
Bulk Density and Matrix Details	Not reported; Sediment			
Media, Recovery, and Statistics	River water or sewage treatment plant effluent; Not reported; Not reported			
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; Not reported; Not reported			
Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported			
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc; 3.00; Calculated based on log Koc = 0.989 log Kow - 0.346, where log Kow = 3.38; Not Reported			
Partition Coefficient Type and Partition Coefficient Results	Log Kp; 0.73			
Partition Coefficient Phase and Partition Coefficient Results	suspended matter-water; Water concentration: 5 - 50 ng/L; calculated sediment concentration: 2.7E-5 - 2.7E-4 ug/gCalculated based on Koc = foc x Kp,			
Mass Balance	Substance was not detected in suspended particulate, concentrations are based on calculations			
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	A general description of the study site was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Field or analytical blanks were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample collection and preparation was reported and acceptable.
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Study Citation:	Watts, C. D., Moore, K. (1988). Fate and transport of organic compounds in rivers. Commission of the European Communities Water Pollution Research Reports, 4 :154-168.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	4933297			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study was acceptable for the test substance.
	Metric 6:	Testing Conditions	High	Temperature, pH, and organic carbon content were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, analyzed, and processed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology allowed the determination of Koc and Kp values.
	Metric 12:	Test Substance Purity	Medium	Sampling methods addressed the outcomes of interest however frequency was not reported and temporal variation cannot be addressed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	GC-FID and GC-MS detected concentrations were comparable. Representativeness of samples was assessed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical methods were reported, however limits of detection were not reported and percent recovery was not conducted. Partitioning was not differentiated between up and downstream. The test substance was not detected in particulate or sediment, which resulted in these concentrations being estimated by mass balance calculations and log Kow relationships to partitioning.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The test substance was not detected in the solid phase; the field study concentrations were based on mass balance calculations and previously observed log Koc and Kp relationships to log Kow. Because the field partitioning values are unverifiable estimates, the overall quality of this study value is low.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

Study Citation:	Weber W J , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	1991522

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; partition to sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Centrifuged, aqueous samples analyzed; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; Sorption in a distilled water-activated sludge system in 150 mL serum bottles
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; TOC 100 mg/L; Not reported
Bulk Density and Matrix Details	Not reported; Not reported
Media, Recovery, and Statistics	Not reported; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Equilibrium achieved in less than 15 min; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; Not Reported; Not Reported; Not Reported
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	Kp; 2.52E-4
Partition Coefficient Phase and Partition Coefficient Results	solids-water in activated sewage sludge; Described by linear sorption model: $q_e = K_p \cdot C_e$ where q_e = amount sorbed, C_e = equilibrium sorption concentration
Mass Balance	Not Reported

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

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Study Citation:	Weber W J, , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.			
OECD Harmonized Template:	Adsorption and Desorption			
HERO ID:	1991522			
		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	Minimal operating test details were reported, pH and temperature were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome methodology was appropriate for determining partition coefficients.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported in low detail, frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study in low in detail and no raw data was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported in low detail, limits of detection and extraction efficiency were not reported. Details may have been reported elsewhere. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results are reasonable based on the method but the low study details decrease the reliability of the result.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Gerstle, R., Carvatti, J. (1987). Sludge incineration and hazardous air pollutants. Sludge Management Series 17:169-174.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5475887

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; municipal sewage sludge; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency	Evaluation of emissions from a sewage sludge incineration process.; Multiple-hearth incineration operating at 13-15 tons/hour, excess air rate: 134% at scrubber inlet.; not reported
Details	
System Type Design	Multiple-hearth incineration with 12 hearths and conventional impinger-type scrubber
Sampling Frequency and Sampling Details	not reported; Samples (3 sets) collected before and after scrubber following a modified EPA method 5
Test Temperature	Max temp: 1420°F
Results Details	Inlet = 2.7 ppb, 0.002 lb/hr; Outlet = 1.0 ppb, 0.001 lb/hr; removal efficiency 50%
Analytical Method and Analytical Details	GC-MS; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified.
	Metric 2: Test Substance Purity	N/A	The metric is not applicable to this type of study.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4: Test Substance Stability	N/A	The metric is not applicable to this type of study.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7: Testing Consistency	N/A	The metric is not applicable to this type of study.
	Metric 8: System Type and Design	High	The system type and design were described.
Domain 4: Test Organisms			

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Study Citation:	Gerstle, R., Carvatti, J. (1987). Sludge incineration and hazardous air pollutants. Sludge Management Series 17:169-174.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5475887			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5490434			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	None; experimental; experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	None; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency Details	Sewage sludge samples were collected form 204 municipal wastewater treatment plants in Michigan.; not applicable; not applicable			
System Type Design	not applicable			
Sampling Frequency and Sampling Details	June - December 1980; 2 samples collected from each treatment plant			
Test Temperature	not applicable			
Results Details	detected in 101 of 215 samples at 0.0229-809 mg/kg dry weight			
Analytical Method and Analytical Details	GC; extracted with cyclohexane			
Transformation Products, Statistics, and Kinetics	not applicable; mean 14.1 mg/kg dry weight; median 0.645 mg/kg dry weight; not applicable			
Reference Substance and Reference Substance Results	not applicable; Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source or purity were not reported; however, the omissions or identified impurities were not likely to have a substantial impact on the study results.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	Uninformative	Only Effluent concentrations reported; Influent concentrations not reported; WWTP type(s) not reported.
	Metric 6:	Testing Conditions	N/A	Not applicable (monitoring study).
	Metric 7:	Testing Consistency	N/A	Not applicable (monitoring study).
	Metric 8:	System Type and Design	Uninformative	WWTP type(s) not reported.

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Study Citation:	Jacobs, L. W., Zabik, M. J. (1983). Importance of sludge-borne organic chemicals for land application programs. :418.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5490434			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	Not applicable (monitoring study).
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	Not applicable (monitoring study).
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable (monitoring study).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.
Overall Quality Determination		Uninformative		

Study Citation:	Kaiman, B., Kluwe, M., Zu Koefker, H. M., Lorber, K. E. (1992). Correlation between CO- and PIC-emissions. Chemosphere 25(7-10):1403-1407.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	666814			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency	Vaporous 1,2-dichlorobenzene mixed with input stream of synthetic air in flameless combustion chamber with indirect heat control; Input rate of 1,2-dichlorobenzene was 2-3 g/Nm3; Not Reported			
Details				
System Type Design	Experiments conducted at a constant air level ($\lambda = 2.5$)			
Sampling Frequency and Sampling Details	Not applicable; Residence time was 2.7 seconds			
Test Temperature	1020 to 1320 K			
Results Details	Oxidation is by far the preferred pathway of decomposition with CO as the main intermediate product reaching a maximum yield of 80%			
Analytical Method and Analytical Details	Levels of CO and CO2 were measured using nondispersive infrared absorption continuous gas monitors (NDIR); quantification of various CHCs was carried out using GC/ECD and GC/FID; HCl was collected in water and then analyzed potentiometrically; Using a NDIR, only CO levels of g/m3 - mg/m3 can be registered, whereas the conc. of PICs, measured by highly sensitive detection methods like GC/ECD or GC/FID, are mainly below ug/m3. Due to LOD difference, CO emissions cannot reflect PIC emission change			
Transformation Products, Statistics, and Kinetics	CO, CO2, Hydrochloric acid, chlorine, and PIC's including polychloromethanes, chlorinated alkanes and alkynes, mono- and polychlorinated benzenes, polychlorinated naphthalenes, biphenyls, phenols, chlorinated ali-cyclic compounds, benzene, naphthalene; The focus of the study was is CO production could be used as a measure of combustion; it was concluded that it could not.; PICs (products of incomplete combustion) were formed in concentrations between mg/Nm3 and ug/Nm3), whereas carbon monoxide concentrations measured were between mg/Nm 3 - g/Nm 3, of approximately 2-4 orders of magnitude higher than the PICs			
Reference Substance and Reference Substance Results	Not applicable; Not applicable			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by chemical name.
	Metric 2:	Test Substance Purity	Low	The test substance source and purity were not reported or verified by analytical means.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	Medium	The test system was described in a previous paper; however, this is unlikely to impact the results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
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Study Citation:	Kaiman, B., Kluwe, M., Zu Koefker, H. M., Lorber, K. E. (1992). Correlation between CO- and PIC-emissions. Chemosphere 25(7-10):1403-1407.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	666814			
Domain	Metric	EVALUATION Rating	Comments	
	Metric 6:	Testing Conditions	Medium	Some details were omitted (exact concentrations of PICs); however, sufficient data were presented to determine that the omissions were not likely to have had a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across experiments.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Insufficiency in detection methods were noted by the authors limiting outcome assessment.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Insufficiency in detection methods were noted by the authors.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some details were not reported; however, these omissions were not likely to have had a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Insufficiency in detection methods were noted by the authors limiting the analysis of data.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Kincannon, D. F., Stover, E. L., Nichols, V., Medley, D. (1983). Removal mechanisms for toxic priority pollutants. Journal of Water Pollution Control Federation 55(2):157-163.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1009775

EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 0			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported			
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported			
Test Method Details, Test Condition Details, and Test Consistency Details	Test substance removal in continuous-flow activated sludge system; Residence times 2, 4, and 6 days per system cell; mean cell residence time 3 d; Not Reported			
System Type Design	Continuous-flow system with internal recycle reactor, settling compartment, and collection tank. Off-gas collected through a vacuum pump to a purge trap with 150 mm Tenax and 100 mm silica gel			
Sampling Frequency and Sampling Details	not reported; not reported			
Test Temperature	Not Reported			
Results Details	>99.9% Overall removal efficiency. Effluent: < 0.05 mg/L 22% via stripping; 0% via sorption; 78% via biodegradation			
Analytical Method and Analytical Details	Not Reported; Not Reported			
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported			
Reference Substance and Reference Substance Results	Not Reported; Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The test substance purity and source were not reported, however this is not likely to have a significant impact on study results
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Concurrent control was not explicitly included
	Metric 4:	Test Substance Stability	Medium	The test substance preparation and storage conditions were not reported
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance
	Metric 6:	Testing Conditions	Medium	Some of the test conditions were reported; many were not despite reportedly monitored
	Metric 7:	Testing Consistency	High	Test conditions were consistent across replicates
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				

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Study Citation:	Kincannon, D. F., Stover, E. L., Nichols, V., Medley, D. (1983). Removal mechanisms for toxic priority pollutants. Journal of Water Pollution Control Federation 55(2):157-163.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1009775			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is used for similar study types.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	The study did not specify sampling methods but the samples collected address the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were not explicitly considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Sufficient evidence was presented to confirm that the parent disappearance was not likely due to some other process
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical analyses was not conducted but sufficient data were reported to conduct an independent analysis
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Kuntz, K. W., Warry, N. D. (1983). Chlorinated organic contaminants in water and suspended sediments of the lower Niagara River. Journal of Great Lakes Research 9(2):241-248.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1989859

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	None; other; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	None; NR; NR; NR Notes: 1,2-Di
Test Method Details, Test Condition Details, and Test Consistency Details	samples were collected from a single point in the Niagara River at Niagara-on-the-Lake. Concurrent water and suspended sediments were collected.; not applicable; not applicable
System Type Design	not applicable
Sampling Frequency and Sampling Details	every 2 wks from April 1979-Dec 1981; Suspended solids collected in continuous flow separator at a flow rate of 6 L/min for about 24 hours. 28 samples collected
Test Temperature	not applicable
Results Details	71% detection; mean concentration 148 ng/g dry weight.
Analytical Method and Analytical Details	GC; Not Reported
Transformation Products, Statistics, and Kinetics	not applicable; 139 ng/g dry weight standard deviation.; loading rate of 250 kg/yr to Lake Ontario by Niagara River suspended sediments (1980-1981)
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source 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	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations which were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.

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Study Citation:	Kuntz, K. W., Warry, N. D. (1983). Chlorinated organic contaminants in water and suspended sediments of the lower Niagara River. Journal of Great Lakes Research 9(2):241-248.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1989859			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).
OECD Harmonized Template:	Miscellaneous
HERO ID:	1269556

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; oDCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Destruction or Removal Efficiencies (DRE) was determined for selected pollutants in an Upjohn System incinerator at Upjohn Company in LaPorte, Texas.; Residence time: 5.2 secHeat input: 6.2 - 6.3E6 kJ/hrExcess oxygen in stack: 8.1 - 8.4%; Waste feed heating value: 19,710 - 20,400 kJ/kg (liquid organic), 4,090-4520 kJ/kg (aqueous)Moisture: 35 - 48% (liquid organic), 94 - 97% (aqueous)
System Type Design	Burner/ignition chamber, thermal oxidizer, quench, packed tower
Sampling Frequency and Sampling Details	NR, 3 sample runs collected.; Liquid and solid feed collected as grab samples. Stack effluent collected by modified method 5 (MM5): XAD-2 resin traps with particulate filter
Test Temperature	1116°C
Results Details	DRE: 99.9990, 99.993, and 99.9990
Analytical Method and Analytical Details	GC/ECD (waste feeds); GC/MS (MM5 gas samples); Waste feeds mixed with tetraglyme and reagent water prior to analysis. Traps were Soxhlet-extracted with methylene chloride, dried with anhydrous sodium sulfate, concentrated using Kuderna-Danish evaporation, with N2.
Transformation Products, Statistics, and Kinetics	Not reported; Linear regression comparison to DRE and starting concentration; no compounds below 200 ug/g in waste feed achieved DRE > 99.99%, correlation coefficient for regression line: - 0.84; Not reported
Reference Substance and Reference Substance Results	MM5 blank samples; Values blank corrected

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The chemical of interest was identified by name.
	Metric 2:	Test Substance Purity	High	Sample source was reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Field blanks were included and results were blank corrected.
	Metric 4:	Test Substance Stability	Medium	Sample processing was reported for some samples, storage was not reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The system stages and appropriate operational parameters were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Midwest Research Institute, (1984). Performance evaluation of full-scale hazardous waste incinerators - Volume I (excutive summary) contract no. 68-02-3177 (43).			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1269556			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining DRE.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and sampled feed and effluents.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified. Study is very thorough.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical methods were appropriate; extraction efficiencies were reported. Limits of detection were not reported explicitly.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable, although the study authors noted their purpose was not to determine operational parameters effects on DRE, only normal DRE under standard conditions.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Monsanto, (1987). Monsanto Pensacola plant ground water assessment feasibility study with 19 chemicals with attachments and cover letter dated 121887.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	4214180			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	None; Monitoring data and modeling; Monitoring data and modeling			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; Contaminated site; NR; NA Notes: NR			
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring sample from Monsanto Pensacola Plant groundwater; NA; NR			
System Type Design	NR			
Sampling Frequency and Sampling Details	NR; NR			
Test Temperature	NR			
Results Details	Concentration of 0.0190 mg/L detected at well no. 2pt-13; modeling results 8.6E-5 to 2.2E-9 mg/L			
Analytical Method and Analytical Details	Assumed the Florida Groundwater and Surface Quality Criteria in appendix was used.; NR			
Transformation Products, Statistics, and Kinetics	NR; NR; NR			
Reference Substance and Reference Substance Results	NR; NR			
EVALUATION				
Domain	Metric	Rating		Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	This metric does not apply to this type of study.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	This metric does not apply to this type of study.
	Metric 4:	Test Substance Stability	N/A	This metric does not apply to this type of study.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	Uninformative	Lack of information resulted in serious flaws that make the study unusable.
	Metric 6:	Testing Conditions	Uninformative	Lack of information resulted in serious flaws that make the study unusable.
	Metric 7:	Testing Consistency	N/A	This metric does not apply to this type of study.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this type of study.
Domain 4: Test Organisms	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this type of study.
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Study Citation:	Monsanto, (1987). Monsanto Pensacola plant ground water assessment feasibility study with 19 chemicals with attachments and cover letter dated 121887.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	4214180			
Domain	Metric	EVALUATION Rating	Comments	
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Low	
	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results.			
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	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 Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 Quality Determination		Uninformative		

Study Citation:	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1265686

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene
Confidentiality, Type, Guideline	None; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	influent, effluent and sludge samples from 50 treatment plants (plant descriptions are available); duplicate and field blanks were included; plant treatments: primary (P); secondary activated sludge (AS); secondary trickling filter (TF); secondary oxygen activated sludge (OAS); secondary rotating biological contactor (RBC); secondary aerated lagoon (AL); secondary parallel activated sludge and trickling filter (AS/TF); tertiary (T); not reported
System Type Design	not reported
Sampling Frequency and Sampling Details	influent, effluent, sludge; in general: six consecutive days; 24 hour samples; more detail are available.
Test Temperature	not applicable
Results Details	not reported
Analytical Method and Analytical Details	EPA base-neutral protocol; mean recovery 48-74% and 73±38%
Transformation Products, Statistics, and Kinetics	not applicable; % detection @ influent concentration: 23% @ 1-440 ug/L (POTW 1-40); 23% @ 1-350 ug/L (POTW 51-60); effluent concentrations: 8% @ 1-27 ug/L (POTW 1-40); 7% @ 1-6 ug/L (POTW 51-60); sludge concentrations: 16% @ 3-1319 ug/L (POTW 1-40); 10% @ 270-590 ug/L (POTW 51-60); not reported
Reference Substance and Reference Substance Results	not applicable; Not Reported

EVALUATION

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

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Study Citation:	(1982). Fate of Priority Pollutants in Publicly Owned Treatment Works, Volume I.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1265686			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Park, K. S., Sorensen, D. L., Sims, J. L., Adams, V. D. (1988). Volatilization of wastewater trace organics in slow rate land treatment systems. Hazardous Waste and Hazardous Materials 5(3):219-230.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2802028

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Deionized water; NR; Teflon gas sampling bag; NR
Radiolabel, Source, State, Purity	NR; Baker Chemical Co., Phillipsburg, NJ; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Laboratory column study conducted to model volatilization of pollutants of interest in slow rate land treatment systems.; Slow infiltration rate = 0.56 cm/hr over an 18 hr day Test solutions: 1022 ug/L (low), 5081 ug/L (high); Soil 1: Bramwell silty clay loam, 8.3 pH, CEC 15.9 meq/100g, 0.63% organic carbon Soil 2: Nibley silty clay loam, 8.2 pH, CEC 68.6 meq/100g, 0.53% organic carbon Soil 3: Kidman sandy loam, 8.8 pH, CEC 8.0 meq/100g, 0.47% organic carbon
System Type Design	7.5 cm I.D. by 150 cm borosilicate glass columns back with sieved soil, attached to Teflon tube with flow regulating valve and Teflon gas sampling bag containing the test substance.
Sampling Frequency and Sampling Details	6, 18, 30, and 168 hours after application; Air samples collected for 6 hr, as 50 mL/min air from headspace
Test Temperature	12 and 21°C
Results Details	Percent volatilized: 29.5±4.0% (12°C), 39.3±3.0% (21°C) after 168 hours
Analytical Method and Analytical Details	GC with Ni-63 electron capture detector, analytes separated on 300 cm x 2 mm I.D. glass column with 1% SP-100 on 60/80 mesh Carbopack B.; VOCs trapped by passing air through impinger with hexane; trap cooled with dry ice/acetone suspension
Transformation Products, Statistics, and Kinetics	Not applicable; Multiple-way analysis of variance (P < 0.05), specific significant differences identified by the least significant difference. No significant difference between concentrations or soil type; significantly increased volatilization observed at 21°C; Mass transfer coefficient K1 = 9.71 cm/hr Calculated by $K1 = (13266) / [(1.042/H) + 100] * M^{0.5}$ Molecular weight, M = 147.0 g/mol Henry's Law Constant, H= 0.079
Reference Substance and Reference Substance Results	Deionized water only, control; 10 to 100 fold higher

EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source, but not purity, were reported.
Domain 2: Test Design	Metric 3:	Study Controls	High	Water only controls were included and were within an appropriate range.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage 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	All appropriate testing conditions were reported (temperature, soil characteristics).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.

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Study Citation:	Park, K. S., Sorensen, D. L., Sims, J. L., Adams, V. D. (1988). Volatilization of wastewater trace organics in slow rate land treatment systems. Hazardous Waste and Hazardous Materials 5(3):219-230.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	2802028			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining volatilization from soil.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate; samples were collected at an appropriate frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; limits of detection and extraction efficiency were not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method but were not compared to similar studies.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	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.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5441706			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	Not Reported; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	None; experimental; experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	None; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency Details	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 mmol/g/100 g; 12 hour illumination; 4.4±0.17 cm of wastewater applied/day. Expected concentration 7.1 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 Sampling Details	not reported; suction samplers were mid soil level.			
Test Temperature	20±2 °C			
Results Details	volatilized: 21±12%; effluent: <1%; not accounted for: 79±12%			
Analytical Method and Analytical Details	GC; not reported			
Transformation Products, Statistics, and Kinetics	not reported; Not Reported; Not Reported			
Reference Substance and Reference Substance Results	system run with spring water; effluent: <1%			
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.
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Study Citation:		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.		
OECD Harmonized Template:		Miscellaneous		
HERO ID:		5441706		
Domain	Metric	EVALUATION		Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome(s) of interest. This is a serious flaw that makes the study unusable.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods of the outcome(s) of interest were reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	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 Presentation and Analysis				
	Metric 15:	Data Reporting	Low	There was insufficient evidence presented to confirm that parent compound disappearance was not likely due to some other process 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 not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		NEED TO FIX		

Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.
OECD Harmonized Template:	Miscellaneous
HERO ID:	660424

Parameter		EXTRACTION		
CASRN and Test Material		Not Reported; 1,2-Dichlorobenzene		
Confidentiality, Type, Guideline		none; not specified; not specified		
Solvent, Reactivity, Storage, Stability		NR; NR; NR; NR		
Radiolabel, Source, State, Purity		NR; NR; NR; NR		
Test Method Details, Test Condition Details, and Test Consistency Details		not reported; not reported; not reported		
System Type Design		not reported		
Sampling Frequency and Sampling Details		not reported; not reported		
Test Temperature		not reported		
Results Details		Relative soil volatility (RSV): 1.2 x 10 ⁻¹ (value corresponds to Moderately Volatile Waste classification by Resource Conservation and Recovery Act)		
Analytical Method and Analytical Details		not reported; not reported		
Transformation Products, Statistics, and Kinetics		not reported; not reported; not reported		
Reference Substance and Reference Substance Results		not reported; not reported		
Domain		EVALUATION		
		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported in this secondary source.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable.
	Metric 4:	Test Substance Stability	Low	Details were not reported in this secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Details were not reported in this secondary source.
	Metric 6:	Testing Conditions	Low	Details were not reported in this secondary source.
	Metric 7:	Testing Consistency	Low	Details were not reported in this secondary source.
	Metric 8:	System Type and Design	Low	Details were not reported in this secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable.

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Study Citation:	Prasad, S. S. (1992). Predicting the environmental distribution of compounds with unknown physicochemical properties from known pesticide properties. Journal of AOAC International 75(5):916-924.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	660424			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 10:	Sampling Methods	N/A	The metric is not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details were not reported in this secondary source.
	Metric 12:	Test Substance Purity	Low	Details were not reported in this secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details were not reported in this secondary source.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details were not reported in this secondary source.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Quality Determination		Low		

* Related References: HERO ID: 1265573 (not in distiller)Proceedings: International Conference on New Frontiers for Hazardous Waste Management (1985) Report Number 600985025

Study Citation:	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	29959			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-dichlorobenzene			
Confidentiality, Type, Guideline	No; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported			
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported			
Test Method Details, Test Condition Details, and Test Consistency	Gas scavenging describes gaseous organic compounds partitioning to precipitation and fall to a land or water surface or the concentrations of organic compound in the precipitation divided by the concentration in the air.; Not Reported; Not Reported			
Details				
System Type Design	Not Reported			
Sampling Frequency and Sampling Details	Not Reported; Not Reported			
Test Temperature	8°C			
Results Details	Gas scavenging ratio (Wg) = 46±13			
Analytical Method and Analytical Details	Not Reported; Not Reported			
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported			
Reference Substance and Reference Substance Results	Not Reported; Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified 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.
	Metric 7:	Testing Consistency	N/A	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	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.
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Study Citation:	Rathbun, R. E. (1998). Transport, behavior, and fate of volatile organic compounds in streams.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	29959			
Domain	Metric	EVALUATION Rating		Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 6: Confounding/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 Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation 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 Kinetic Calculations	Medium	Not reported in this secondary source; the source cited likely contains more detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Not reported in this secondary source; the source cited likely contains more detail.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination**Medium**

* Related References: Citing Ligocki, M.P., Leuenberger, C., and Pankow, J.F ., 1985, Trace organic compounds in rain-II, Gas scavenging of neutral organic compounds: Atmospheric Environment, v. 19, no. 10, p. 1609-1617. HERO ID 724845.

Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429-438.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1990443

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Pilot plants were constructed and filled with pretreated waste water and solution containing the compound of interest to determine removal efficiency of selected pollutants.; Aeration: 15 L air for first stage, 60 - 70 L/h for second stageInflow: 10.0 L/h (both stages)Waste water analysis (1st, 2nd stage)Influent CBOD: 455, 533 mg/LInfluent CCOD: 745, 728 mg/LEffluent CBOD: 533, 308 mg/LEffluent CCOD: 728, 490 mg/L; 0.2 mL test substance solution (250 ug/L test substance per water water) continuously pumped into sludge activation tank of first stage. Primary settled waste water from Aachen. Test substance concentration held steady for 5 days.
System Type Design	Inflow, storage tank, first stage aeration tank, intermediate settling tank, second stage aeration tank, final clarifier, effluent.
Sampling Frequency and Sampling Details	Samples collected continuously over 5 days; Samples collected as 24-hr composite samples; air samples trapped on activated carbon. Samples collected after settling tank, first aeration tank (air and water), intermediate settling tank, second aeration tank (air and water), effluent, return sludge.
Test Temperature	Not reported
Results Details	Dosage (1st, 2nd stage): 2445, 2106 µg/hWaste air (1st, 2nd stage): 171, 211 µg/h (7, 10%)Effluent (1st, 2nd stage): 2106, 1788 µg/h (86, 85%)Sludge (1st, 2nd stage): 168, 107 µg/h (7, 5%)Supposed degradation: 0% both stagesStripping (1st, 2nd stage): 7, 10%50% escaped from open sampling bottles. Resulted were adapted with results of recovery experiments.
Analytical Method and Analytical Details	GC/ECD; Waste water, sludge, and air samples extracted with pentane or ether
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Analytical blanks or other controls were not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance solvent and starting concentrations were reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The pilot scale study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Pilot scale operational stages but minimal operational parameters (did not include HRT, SRT), were included. Temperature was not reported.

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Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429–438.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1990443			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	Low	Sampling methods were of an acceptable frequency but the authors noted test substance loss of volatile substances was possible during sample storage, and biodegradation in storage could not be ruled out.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	The overall study was low in detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported, limits of detection and extraction efficiency were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study authors identified deficiencies in their sampling method, resulting in this value to be considered lower in quality.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Medium**

* Related References: Cited in ECHA

Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429–438.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1990443

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Pilot plants were constructed and filled with pretreated waste water and solution containing the compound of interest to determine removal efficiency of selected pollutants.; Aeration: 60 - 70 L/h Inflow: 5.0 L/hWaste water analysisInfluent CBOD: 455 mg/LInfluent CCOD: 745 mg/LEffluent CBOD: 20 mg/LEffluent CCOD: 93 mg/L; 0.2 mL test substance solution (250 ug/L test substance per water water) continuously pumped into sludge activation tank of first stage. Waste water primary settled waste water from Aachen. Test substance concentration held steady for 5 days.
System Type Design	Inflow, storage tank, aeration tank, final clarifier
Sampling Frequency and Sampling Details	Samples collected continuously over 5 days; Samples collected as 24-hr composite samples; air samples trapped on activated carbon. Samples collected after settling tank, aeration tank (air and water), final effluent, return sludge
Test Temperature	Not reported
Results Details	Dosage: 1296 µg/hWaste air : 130 µg/h (10%)Effluent: 1031 µg/h (80%)Sludge: 109 µg/h (8%)Supposed degradation: 26 µg/h (2%)Stripping rate: 10%
Analytical Method and Analytical Details	GC/ECD; Waste water, sludge, and air samples extracted with pentane or ether
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Low	Source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Analytical blanks or other controls were not explicitly included.
	Metric 4:	Test Substance Stability	High	Test substance solvent and starting concentrations were reported.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The pilot scale study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Pilot scale operational stages but minimal operational parameters (did not include HRT, SRT), were included. Temperature was not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429–438.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1990443			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	Low	Sampling methods were of an acceptable frequency but the authors noted test substance loss of volatile substances was possible during sample storage, and biodegradation in storage could not be ruled out.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	The overall study was low in detail.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported, limits of detection and extraction efficiency were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study authors identified deficiencies in their sampling method, resulting in this value to be considered lower in quality.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		Medium		

Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429-438.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1990443

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	1.25 g dissolved in 1 L acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	A pilot wastewater plant was constructed with two parallel systems, a double-stage process and a low loaded process, in order to determine removal efficiency.; Feed: primary settled wastewater from Aachen.C_BOD: 455 - 533 mg/L, 20 - 533 mg/L (influent, effluent)C_COD: 728 - 745 mg/L, 93 - 728 mg/L (influent, effluent)MLSS: 1.28 - 3.9 g/L; 250 ug test substance / L wastewater pumped continuously through the two systems.
System Type Design	Influent, thermostat, settling tankDouble stage process: aeration tank, intermediate settling tank, aeration tank, final clarifier, effluentLow loaded process: aeration tank, final clarifier, effluent.
Sampling Frequency and Sampling Details	Sampled continuously over 5 days.; Samples collected from steel tubes into glass bottles as 24 hr composite samples, and refrigerated. Samples collected at influent, effluent, aeration tanks, and return to sludge
Test Temperature	Not reported
Results Details	Double stage, stage 1: -17% C_BOD removal efficiency, 2% C_COD removal efficiency; 7% air, 86% effluent, 7% sludge; 14 % removal efficiencyDouble stage, stage 2: 47% C_BOD removal efficiency, 33% C_COD; 10% air, 85% effluent, 5% sludge; 15% removal efficiencyLow loaded process: 95% C_BOD removal efficiency, 87% C_COD; 10% air, 80% effluent, 8% sludge, 2% degradation; 20% removal efficiency
Analytical Method and Analytical Details	GC/ECD; Waste water, sludge, and waste air samples extracted with pentane or ether.
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design	Metric 3:	Study Controls	Medium	Analytical blanks were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance solvent and preparation were reported, but not storage conditions.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Operational stages were reported, some operational parameters (HRT, SRT, temperature) were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent between the two plants.
	Metric 8:	System Type and Design	N/A	Not applicable.

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Study Citation:	Schroeder, H. F. (1987). Chlorinated hydrocarbons in biological sewage purification fate and difficulties in balancing. Water Science and Technology 19(3-4):429–438.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1990443			
		EVALUATION		
Domain	Metric	Rating		Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Some study details were omitted on pilot system design and operation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported; extraction efficiency and limits of detection were not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method and however some study details were omitted and results were not compared to other studies.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quality Determination			High	

Study Citation:	Stover, E. L., Fazel, A., Kincannon, D. F. (1985). Powdered activated carbon and ozone-assisted activated sludge treatment for removal of toxic organic compounds. <i>Ozone: Science and Engineering</i> 7(3):191-203.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5468013

EXTRACTION	
Parameter	Data
CASRN and Test Material	NR; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	none; Wastewater treatment removal; Wastewater treatment removal
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NA Notes: NR
Test Method Details, Test Condition Details, and Test Consistency	The test substance was spiked in a synthetic wastewater mixture of ethylene glycol, ethyl alcohol, glucose, glutamic acid, acetic acid, and salts with an initial BOD5, TOC, and COD of approximately 250, 165, and 500 mg/L.; NR; NR
Details	
System Type Design	NR
Sampling Frequency and Sampling Details	Test results obtained over a two-year period; NR
Test Temperature	NR
Results Details	Influent = 83 mg/L, stripping = 21.7%, biological = 78.2%, total percent treatment achieved= 99.9%
Analytical Method and Analytical Details	NR; NR
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported or verified by analytical means but may be available in cited sources.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	Testing conditions were not reported but may be available in cited sources.
	Metric 7:	Testing Consistency	N/A	Testing consistency were not reported but may be available in cited sources.
	Metric 8:	System Type and Design	N/A	System type and design were not reported but may be available in cited sources.

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Study Citation:	Stover, E. L., Fazel, A., Kincannon, D. F. (1985). Powdered activated carbon and ozone-assisted activated sludge treatment for removal of toxic organic compounds. <i>Ozone: Science and Engineering</i> 7(3):191-203.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5468013			
Domain	Metric	EVALUATION Rating		Comments
Domain 4: Test Organisms	Metric 9:	Outcome Assessment Methodology	N/A	Details not reported but may be available in cited sources.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment	Metric 11:	Test Substance Identity	Medium	Limited details were reported; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	N/A	Details not reported but may be available in cited sources.
Domain 6: Confounding/Variable Control	Metric 13:	Confounding Variables	N/A	Details not reported but may be available in cited sources.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Details not reported but may be available in cited sources.
Domain 8: Other	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**Medium**

* Related References: Citing KINCANNON, D.F., E.L. STOVER and Y.P. CHUNG, "Biological Treatment of Organic Compounds Found in Industrial Aqueous Effluents", presented at the Am. Chem. Soc. Natl. Mtg., Atlanta, GA., March and April (1981) and STOVER, E.L. and D.F. KINCANNON, "Biological Treatability of Specific Organic Compounds Found in Chemical Industry Wastewaters", in Proc. 36th Industrial Waste Conf., (Stonehara, MA: Ann Arbor Sci. Publ., Inc., 1982), pp 1-16 (HERO ID 18214).

Study Citation:	Van Luin, A. B., Van Starkenburg, W. (1985). Hazardous Substances in Waste Water. Water Science and Technology 17(6-7):843–853.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5443237			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency	Six WWTPs evaluated, treatment processes included oxidation ditch, activated sludge, trickling filter; flow (mean year values) ranged from 1.700-44.800 m3/d; Data from 6 treatment plants were averaged			
Details				
System Type Design	Six municipal Waste Water Treatment Plants influent/ effluent concentrations ug/L: A: <5/<5, B: <5/<5, C: <5/<5, D: <5/<5, E: 15/<5, F: <5/<5			
Sampling Frequency and Sampling Details	Not reported; The influent, effluent and sludge of each treatment plant was sampled seven times; 10 samples were collected for this substance; sludge was not monitored for volatile chlorinated hydrocarbons due to variation in influents			
Test Temperature	Not reported			
Results Details	Percent removal in six municipal waste water treatment plants: Mean: >87%, Min: >67% , Max: >97% Number of samples: 10			
Analytical Method and Analytical Details	The volatile chlorinated hydrocarbons substances were analyzed via CGC/ECD; Not reported			
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not reported			
Reference Substance and Reference Substance Results	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	Analytical reference substance details not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Limited detail on operating conditions of treatment plants.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	N/A	This metric is not applicable to this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
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Study Citation:	Van Luin, A. B., Van Starkenburg, W. (1985). Hazardous Substances in Waste Water. Water Science and Technology 17(6-7):843–853.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5443237			
Domain		Metric	EVALUATION Rating	Comments
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome was addressed.
	Metric 12:	Test Substance Purity	Low	Limited detail on sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Analytical detail not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.
Overall Quality Determination			Medium	

* Related References: Cited in ECHA

Study Citation:	Vandell, R. D., Mahle, N. H., Hixson, E. M. (1994). The effect of oxygen on the formation and destruction of the products of incomplete combustion from the combustion of polyethylene and o-dichlorobenzene. Combustion Science and Technology 101(1-6):261-283.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5344622

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Combustion, products reported; Combustion, products reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NA; NR; NR; "pure" test substance
Test Method Details, Test Condition Details, and Test Consistency Details	Test substance burned in unmodified laboratory thermal oxidizer (LTOX).; Oxidizer air flow rate = 200 cm ³ /minNitrogen carrier gas flow rate = 30 cm ³ /minOxygen to fuel equivalence ratios (Sf): 1.025 - 2.277Soot-point Sf = 2.277 Normalized Sf (Sf*) = Sf / soot-point SfProducts reported at Sf* = 0.45; Not Reported
System Type Design	The LTOX has three zones; pyrolysis/volatilization/flame (PVF) zone, post-flame zone, and transfer zone.
Sampling Frequency and Sampling Details	Not Reported; Products collected in cryogenic trap, which was dissolved in methylene chloride prior to analysis. Particulate trap extracted with benzene prior to analysis. Frequency not reported.
Test Temperature	180 deg C (Fuel vaporization chamber); 800 deg C (Flame zone); 150 deg C (Post-flame zone and soot trap)
Results Details	As oxygen concentration increased, oxygen was increasingly incorporated into the products of incomplete combustion.
Analytical Method and Analytical Details	GC/MS (cryogenic trap products); HP 5971A Mass Selective Detector (particulate trap); Not Reported
Transformation Products, Statistics, and Kinetics	Observed products of incomplete combustion characterized by chlorinated phenols, furans, dioxins, chlorinated biphenyls, naphthalenes, biphenylenes, benzenes, and other higher polynuclear aromatics.; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was reported by name.
	Metric 2: Test Substance Purity	Low	The test substance source and purity were not reported.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	Not applicable.
	Metric 4: Test Substance Stability	Medium	The test substance preparation and storage were not reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	Temperature and fuel to oxygen ratios were reported.
	Metric 7: Testing Consistency	High	Test conditions were consistent throughout the duration of the study.
	Metric 8: System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms			

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Study Citation:	Vandell, R. D., Mahle, N. H., Hixson, E. M. (1994). The effect of oxygen on the formation and destruction of the products of incomplete combustion from the combustion of polyethylene and o-dichlorobenzene. Combustion Science and Technology 101(1-6):261-283.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5344622			
		EVALUATION		
Domain	Metric	Rating		Comments
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Removal rates/efficiency were not reported, product identification was the only information reported.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and appropriate, frequency was acceptable for product identification.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty and variability were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were reported and appropriate; Limits of detection and extraction efficiency were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were not compared to previous studies or large-scale incineration operations and the plausibility could not be verified.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quality Determination		High		

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

EXTRACTION	
Parameter	Data
CASRN and Test Material	Not Reported; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: NA
Test Method Details, Test Condition Details, and Test Consistency Details	Calculation of enthalpy and entropy of volatilization; NR; NA
System Type Design	NA
Sampling Frequency and Sampling Details	NA; NA
Test Temperature	NA
Results Details	Enthalpy of volatilization = 36.13 kJ/M and entropy of volatilization = 68.0 J/MK
Analytical Method and Analytical Details	NA; NA
Transformation Products, Statistics, and Kinetics	NA; NA; NA
Reference Substance and Reference Substance Results	NA; NA

EVALUATION				
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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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			
EVALUATION				
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	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: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to this study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	No serious study deficiencies were identified, and the value was plausible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Quality Determination			Low	

Study Citation:	Weber W J , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1991522

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Bench-scale activated sludge systems set up to determine fate of selected pollutants in synthetic wastewater.; HRT: 5.5 hrSRT: 6 dmixed liquid suspended solids: 3500 mg/L 85% TOC removal rate4.0 L/min aeration rate; Test systems run without biomass, synthetic wastewater contained dextrin, bacto peptone, sodium acetate, sodium citrate, glycine, potassium biphthalate, NaHCO ₃
System Type Design	Bench-scale activated sludge system; 10 L aeration section and 1 L internal clarifier, reactors fitted with airtight lids with off-gas sampling port connected to column packed with Tenax GC.
Sampling Frequency and Sampling Details	every 3-4 days; Influent, effluent, and off gas samples collected
Test Temperature	Not reported
Results Details	Effluent: 6%Off-gas: 59%Biosorbed: 0%Biodegraded: 35%First-order biodegradation rate coefficients kb = 0.017 / min (6 d SRT), 0.018 / min (12 d SRT)First-order volatilization rate coefficients kb = 0.025 / min (6 d SRT), 0.026 / min (12 d SRT)
Analytical Method and Analytical Details	gas chromatography; Aqueous samples liquid-liquid extracted with hexane
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Mass balance: $VdC/dt = QCo - QC - kvCV - kbCVVdC/dt = \text{rate pollutant loss}$ $QCo = \text{flux in}$ $QC = \text{flux out}$ $kvCV = \text{volatilization rate}$ $kbCV = \text{biodegradation rate}$
Reference Substance and Reference Substance Results	Not Reported; recovery 93 - 100%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design			
	Metric 3: Study Controls	Medium	Controls were not explicitly included.
	Metric 4: Test Substance Stability	Medium	Test substance preparation and storage was not reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	System operating conditions were reported.
	Metric 7: Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8: System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Weber W J, , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1991522			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome methodology was appropriate for determining substance fate.
	Metric 12:	Test Substance Purity	High	Sampling methods were not reported, frequency was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study in low in detail and no raw data was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported in low detail, limits of detection and extraction efficiency were not reported. Details may have been reported elsewhere. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results are reasonable based on the method but the low study details decrease the reliability of the result.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Weber W J, , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1991522			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency Details	Bench-scale activated sludge systems set up to determine volatilization rates of selected pollutants in synthetic wastewater.; Aeration are 4.0 L/min; Test systems run without biomass, synthetic wastewater contained dextrin, bacto peptone, sodium acetate, sodium citrate, glycine, potassium biphthalate, NaHCO3			
System Type Design	Bench-scale activated sludge system; 10 L aeration in completely mixed batch reactor			
Sampling Frequency and Sampling Details	Not reported; Not reported			
Test Temperature	Not reported			
Results Details	Kv = 0.0240/min			
Analytical Method and Analytical Details	gas chromatography; Aqueous samples liquid-liquid extracted with hexane			
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; First-order, rate a linear function of aeration rate.Kv = LQa + kvoKv = volatilization rate constantL= slope o linear regression lineQa = aeration ratekvo = intercept of linear regression line			
Reference Substance and Reference Substance Results	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not explicitly included.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minimal operating conditions were reported, influent and effluent concentrations not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
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Study Citation:	Weber W J, , J. R., Jones, B. E., Katz, L. E. (1987). Fate of toxic organic compounds in activated sludge and integrated pac systems. Water Science and Technology 19(3-4):471–482.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1991522			
Domain		EVALUATION		Comments
		Metric	Rating	
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome methodology was appropriate for determining volatilization rates.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were not reported, frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study is low in detail and no raw data was reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported in low detail, limits of detection and extraction efficiency were not reported. Details may have been reported elsewhere. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results are reasonable based on the method but the low study details decrease the reliability of the result.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			Medium	

Study Citation:	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. Chemosphere 53(5):583-591.
OECD Harmonized Template:	Miscellaneous
HERO ID:	1003825

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	n-hexane; NR; NR; NR
Radiolabel, Source, State, Purity	14C labelled; Sigma; NR; NR Notes: Specific activity: 144.3 MBq/mmol
Test Method Details, Test Condition Details, and Test Consistency Details	Microcosms with Holcus Lanatus grass plants growing in soil to investigate the fate and distribution of the selected compound; Soil of two flasks spiked via syringes 20 times with 50 µL test substance and 14C label in hexane (final concentration 0.20 mg/g dry soil), and volatilized 14C was measured over 5 weeks; Mass balance for total 14C added: 91 ± 2%
System Type Design	Glass chamber with grass plants planted in flasks (one tiller per flask, four flasks). Glass adsorption column containing polyurethane foam plugs to trap volatile substances connected to the top of the glass chamber.
Sampling Frequency and Sampling Details	Weekly; Soxhlet extraction for 6.5h with 100 mL n-hexane; Aliquot mixed with scintillation opti-flour O in 1:2 ratio
Test Temperature	20°C (12 h day cycle) 15°C (12 h night cycle)
Results Details	71% of added label volatilized after 2 weeks, 85% after 5 weeksColumn plugs: 12.9, 4.44, 2.91, and 1.57%Flask plugs: 38.9, 14.8, 5.77, and 3.82%
Analytical Method and Analytical Details	Liquid scintillation counter; Recovery from 3 replicate blanks 100.1 ± 1.1%
Transformation Products, Statistics, and Kinetics	Not reported; Column plugs: 0.4, 0.20, 0.09, and 0.16% per weekFlask plugs: 1.01, 0.59, 0.19, and 0.15% per; Not reported
Reference Substance and Reference Substance Results	Inlet plug (inlet air measurement); NA, 0.01±0.001%, NA, 0.01±0.001%

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The test substance source and purity was reported.
Domain 2: Test Design			
	Metric 3: Study Controls	Medium	A concurrent negative control was not explicitly reported but influent air concentrations were measured as a blank.
	Metric 4: Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	Test conditions were monitored, reported, and appropriate for the method.
	Metric 7: Testing Consistency	High	Test conditions were consistent across replicates.
	Metric 8: System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Wilson, S. (2003). Investigation of organic xenobiotic transfers, partitioning and processing in air–soil–plant systems using a microcosm apparatus. Part II: comparing the fate of chlorobenzenes in grass planted soil. Chemosphere 53(5):583-591.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1003825			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and addressed the outcomes of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were considered and accounted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Extraction efficiency and mass balance were reported. Analytical methods were suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination**High**

Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5250206

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Hexane; NR; Samples stored in hexane or hexane-acetone mixture if not analyzed immediately; NR
Radiolabel, Source, State, Purity	¹⁴ C-labelled, specific activity 244.2 MBq/mmol, activity 148 KBq/mL; Sigma; NR; >99%
Test Method Details, Test Condition Details, and Test Consistency Details	Holcus lanatus grass plants, single tillers grown in soils in glass tubes, plant separated from soil by pufs. Adsorption column at the top of the chamber, contained polyurethane foam plugs (pufs) to trap volatiles, column extended into plant vial; Agricultural clay loam: 30% clay, 20% sand, 50% silt, pH 7.4, 7.5% organic matter, 50% max moisture holding capacity; Microcosms maintained at consistent temperature and light conditions.
System Type Design	Glass chamber microcosm with grassed soils
Sampling Frequency and Sampling Details	Once, after 1 week; Plant recovery 79.1 ± 3.0%, soil recovery 90.2 ± 1.3%, microcosm puf recovery 99.2 ± 3.1%
Test Temperature	20°C (12-hour day); 15°C (12-hour night)
Results Details	Approximately 70% loss from soil due to volatilization. Mineralization was not detected, no evidence of root uptake. 14 C% recovered of applied- Mineralization: 0 Volatilization: 58.5 ± 4.0 (pufs in column), 5.33 ± 0.45 (pufs in flask) Plant, extracted: 0.18 ± 0.13 (top), 0 (stem), 0.01 ± 0.01 (roots) Plant, unextracted: 0.01 ± 0.01 (top), 0 (stem), 0.05 ± 0.02 (roots) Soil: 26.9 ± 6.9 (extracted), 3.35 ± 2.26 (unextracted) Total: 100.5 ± 3.54
Analytical Method and Analytical Details	Liquid scintillation counter; Plugs, plant, and soil samples were Soxhlet extracted with acetone:n-hexane, added to n-hexane and scintillation cocktail OptiFlour O for analysis. Recovery: 82.6 - 92.6 %. Extracted plant and soil samples digested with chromic acid, recovery 79-90.2%.
Transformation Products, Statistics, and Kinetics	Not reported; Standard deviations reported, number of replicates not reported; Not reported
Reference Substance and Reference Substance Results	Unspiked microcosm; Volatilization: 2.83 ± 0.40 (puf in flask) Plant, extracted: 0.12 ± 0.12 (top), 0 (stem, roots) Plant, unextracted: 0 (top), 0.02 ± 0.02 (stem, roots) Soil: 1.96 ± 0.63 (extracted), 1.19 ± 1.19 (unextracted)

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3: Study Controls	Medium	A concurrent unspiked control was included but was maintained in the same vessel as the spiked soil.
	Metric 4: Test Substance Stability	High	Test substance preparation was reported and appropriate for the study.
Domain 3: Test Conditions	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	Test conditions (soil parameters, temperature, light hours) were reported and appropriate for the method.

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Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5250206			
		EVALUATION		
Domain	Metric	Rating	Comments	
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the microcosm was capable of maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Organism partitioning was not observed to be a significant loss pathway, only organism species was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between replicates and sources of unintentional loss were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were appropriate for detection and quantification and extraction efficiencies were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited statistical analysis conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5250206

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-DCB
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Hexane; NR; Samples stored in hexane or hexane-acetone mixture if not analyzed immediately; NR
Radiolabel, Source, State, Purity	14C-labelled,specific activity 244.2 MBq/mmol, activity 148 KBq/mL; Sigma; NR; >99%
Test Method Details, Test Condition Details, and Test Consistency Details	Spiked soil placed in vials in vessel, topped with pufs. Adsorption column at the top of the chamber, contained 2.5 polyurethane foam plugs (pufs) to trap volatiles, and an NaOH trap for carbon dioxide.; Agricultural clay loam: 30% clay, 20% sand, 50% silt, pH 7.4, 7.5% organic matter, 50% max moisture holding capacity; Microcosms maintained at consistent temperature and light conditions.
System Type Design	Glass chamber microcosm with soil vial
Sampling Frequency and Sampling Details	Once, after 1 week; Soil recovery $90.2 \pm 1.3\%$, microcosm puf recovery $99.2 \pm 3.1\%$
Test Temperature	20°C (12-hour day); 15°C (12-hour night)
Results Details	Approximately 70% loss from soil due to volatilizationMineralization was not detected, no incorporation into soils14 C% recovered of applied-Mineralization: 0Volatilization: 28.8 ± 0.2 (pufs in column), 17.3 ± 0.04 (pufs in flask)Soil: 30.0 ± 1.99 (extracted), 0 (unextracted)Total: 91.4 ± 2.0
Analytical Method and Analytical Details	Liquid scintillation counter; Plugs, and soil samples were Soxhlet extracted with acetone:n-hexane, added to n-hexane and scintillation cocktail OptiFlour O for analysis. Recovery: 82.6 - 92.6 %. Extracted soil samples digested with chromic acid, recovery 79-90.2%.
Transformation Products, Statistics, and Kinetics	Not reported; Standard deviations reported, number of replicates not reported; Not reported
Reference Substance and Reference Substance Results	Unspiked unplanted microcosm; Volatilization: 11.8 ± 0.17 (puf in flask)Soil: 3.41 ± 0.39 (extracted), 0 (unextracted)

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design	Metric 3: Study Controls	Medium	A concurrent unspiked control was included but was maintained in the same vessel as the spiked soil.
	Metric 4: Test Substance Stability	High	Test substance preparation was reported and appropriate for the study.
Domain 3: Test Conditions	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	Test conditions (soil parameters, temperature, light hours) were reported and appropriate for the method.
	Metric 7: Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8: System Type and Design	High	Equilibrium was established, the microcosm was capable of maintaining substance concentrations.

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Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5250206			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between replicates and sources of unintentional loss were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were appropriate for detection and quantification and extraction efficiencies were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited statistical analysis conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination		High		

Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5250206			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-DCB			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	Hexane; NR; Samples stored in hexane or hexane-acetone mixture if not analyzed immediately; NR			
Radiolabel, Source, State, Purity	14C-labelled,specific activity 244.2 MBq/mmol, activity 148 KBq/mL; Sigma; NR; >99%			
Test Method Details, Test Condition Details, and Test Consistency Details	Spiked soil placed in vials in vessel, topped with pufs. Adsorption column at the top of the chamber, contained 2.5 polyurethane foam plugs (pufs) to trap volatiles, and an NaOH trap for carbon dioxide. Column extended into the soil vial; Agricultural clay loam: 30% clay, 20% sand, 50% silt, pH 7.4, 7.5% organic matter, 50% max moisture holding capacity; Microcosms maintained at consistent temperature and light conditions.			
System Type Design	Glass chamber microcosm with soil vial			
Sampling Frequency and Sampling Details	Once, after 1 week; Soil recovery 90.2 ± 1.3%, microcosm puf recovery 99.2 ± 3.1%			
Test Temperature	20°C (12-hour day); 15°C (12-hour night)			
Results Details	loss fromApproximately 70% soil due to volatilizationMineralization was not detected, no incorporation into soils14 C% recovered of appliedMin-eralization: 0Volatilization: 61.9 ± 3.2 (pufs in column), 6.06 ± 1.12 (pufs in flask)Soil: 21.9 ± 3.86 (extracted), 0.71 ± 0.71 (unextracted)Total: 97.8 ± 5.3			
Analytical Method and Analytical Details	Liquid scintillation counter; Plugs, and soil samples were Soxhlet extracted with acetone:n-hexane, added to n-hexane and scintillation cocktail OptiFlour O for analysis. Recovery: 82.6 - 92.6 %. Extracted soil samples digested with chromic acid, recovery 79-90.2%.			
Transformation Products, Statistics, and Kinetics	Not reported; Standard deviations reported, number of replicates not reported; Not reported			
Reference Substance and Reference Substance Results	Unspiked unplanted microcosm; Volatilization: 4.17 ± 0.23 (puf in flask)Soil: 2.84 ± 0.36 (extracted), 0.08 ± 0.08 (unextracted)			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	A concurrent unspiked control was included but was maintained in the same vessel as the spiked soil.
	Metric 4:	Test Substance Stability	High	Test substance preparation was reported and appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Test conditions (soil parameters, temperature, light hours) were reported and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established, the microcosm was capable of maintaining substance concentrations.
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Study Citation:	Wilson, S. C., Meharg, A. A. (1999). Investigation of organic xenobiotic transfers, partitioning and processing in air-soil-plant systems using a microcosm apparatus. Part I: Microcosm development. Chemosphere 38(12):2885-2896.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5250206			
		EVALUATION		
Domain	Metric	Rating	Comments	
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were appropriate for the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability between replicates and sources of unintentional loss were considered.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Analytical methods were appropriate for detection and quantification and extraction efficiencies were reported
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited statistical analysis conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Young, C. M., Voorhees, K. J. (1992). Thermal decomposition of 1,2-dichlorobenzene: Part I. Effect of operating conditions. Chemosphere 24(5):525-536.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1486980			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR			
Test Method Details, Test Condition Details, and Test Consistency Details	apparatus designed to simulate the conditions of a commercial fluidized bed incineration system; Tests run for 20 minutes; Tests run at 700, 750 and 800C; residence times of 1 sec. and 2 sec were evaluated			
System Type Design	system with gas flow meters, feed pump, preheater section, high temperature reaction section, liquid absorber section, and gas sampling section			
Sampling Frequency and Sampling Details	Not reported; Not reported			
Test Temperature	heat packed bed 400°C; temperatures of the inlet to the packed bed were in the range of 450-515C; reaction chamber temperatures 700, 750, and 800C were used			
Results Details	Product distribution at 700C (µg/g DCB): chlorobenzene 236, dichlorobenzene 10.8 mg, trichlorobenzene 259, tetrachlorobenzene 68, pentachlorobenzene 30, hexachlorobenzene 21, chlorophenol 18, dichlorophenol 86, trichlorophenol 128, tetrachlorophenol 32, pentachlorophenol 1.2; at 750C (µg/g DCB): chlorobenzene 18, dichlorobenzene 372, trichlorobenzene 0.8, tetrachlorobenzene 0.3, pentachlorobenzene 1.4, hexachlorobenzene 7.5, chlorophenol <0.1, dichlorophenol <0.1, trichlorophenol <0.1, tetrachlorophenol <0.1, pentachlorophenol <0.1; at 800C (µg/g DCB): chlorobenzene at 750C (µg/g DCB): chlorobenzene 18, dichlorobenzene 372, trichlorobenzene 0.8, tetrachlorobenzene 0.3, pentachlorobenzene 1.4, hexachlorobenzene 7.5, chlorophenol <0.1, dichlorophenol <0.1, trichlorophenol <0.1, tetrachlorophenol <0.1, pentachlorophenol <0.1, at 800C (µg/g DCB): chlorobenzene <0.1, dichlorobenzene <0.1, trichlorobenzene <0.1, tetrachlorobenzene 0.2, pentachlorobenzene 4.2, hexachlorobenzene 16, chlorophenol <0.1, dichlorophenol <0.1, trichlorophenol <0.1, tetrachlorophenol <0.1, pentachlorophenol <0.1.			
Analytical Method and Analytical Details	General EPA guidelines from EPA Methods 8240 and 8270 of SW-846 were used for analysis of organic compounds; Not reported			
Transformation Products, Statistics, and Kinetics	1,3-DCB and 1,4-DBC detected during the combustion process; chlorobenzene, dichlorobenzene, trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene, chlorophenol, dichlorophenol, trichlorophenol, tetrachlorophenol, pentachlorophenol; Doubling residence time, changed the number of PICs from 27 at 1 seconds to 11 at 2 seconds.; Effect of O2 on product distribution was assessed with excess O2, stoichiometric and sub stoichiometric amounts; tests at 800C with varying oxygen concentrations produced the fewest PICs and least DCB remaining.			
Reference Substance and Reference Substance Results	Not reported; Not reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified clearly.
	Metric 2:	Test Substance Purity	Medium	The purity was not reported or verified.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	Controls were not reported.
	Metric 4:	Test Substance Stability	High	This metric met the criteria for high confidence as expected for this type of study.
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Study Citation:	Young, C. M., Voorhees, K. J. (1992). Thermal decomposition of 1,2-dichlorobenzene: Part I. Effect of operating conditions. Chemosphere 24(5):525-536.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	1486980			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Experimental treatment technology.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No confounding variables were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.
Overall Quality Determination			High	

Study Citation:	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5344596

EXTRACTION	
Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Simulated wastewater containing 50 mg/L glucose, 15 mg/L KH ₂ PO ₄ , 6.0 mg/L NH ₄ Cl and 2.0 mg/L o-DCB; 90 day study (July 10 to October 10, 2009); 5 d hydraulic retention time.; Concentrations measured at different HRT, different distances from source and at different levels in the constructed wetlands.
System Type Design	loam horizontal subsurface flow constructed wetlands planted with Phragmites australis fed simulated wastewater from sealed tank; hydraulic retention time regulated
Sampling Frequency and Sampling Details	every 10 days; composite of bed effluents
Test Temperature	not applicable (field simulation)
Results Details	average 90% removal
Analytical Method and Analytical Details	GC-ECD; Samples extracted in hexane
Transformation Products, Statistics, and Kinetics	not applicable (field simulation); from figure: 82-93% removal; Removal at 0.3 m 30-40% higher than at 0.7 m depth related to the dissolved oxygen in the wetland. Higher degradation in July/August than September/October
Reference Substance and Reference Substance Results	not applicable (field simulation); Not Reported

EVALUATION				
Domain	Metric		Rating	Comments
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate.

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Study Citation:	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5344596			
Domain	Metric	EVALUATION		Comments
		Rating		
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some inconsistencies were found in the data reporting; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination		High		

Study Citation:	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5344596			
EXTRACTION				
Parameter	Data			
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene			
Confidentiality, Type, Guideline	None; Experimental; Experimental			
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR			
Radiolabel, Source, State, Purity	NR; NR; NR; NR			
Test Method Details, Test Condition Details, and Test Consistency Details	Simulated wastewater containing 50 mg/L glucose, 15 mg/L KH2PO4, 6.0 mg/L NH4Cl and 2.0 mg/L o-DCB; 90 day study (July 10 to October 10, 2009); 5 d hydraulic retention time.; Concentrations measured at different HRT, different distances from source and at different levels in the constructed wetlands.			
System Type Design	fine sand horizontal subsurface flow constructed wetlands planted with Phragmites australis fed simulated wastewater from sealed tank; hydraulic retention time regulated			
Sampling Frequency and Sampling Details	every 10 days; composite of bed effluents			
Test Temperature	not applicable (field simulation)			
Results Details	average 77% removal			
Analytical Method and Analytical Details	GC-ECD; Samples extracted in hexane			
Transformation Products, Statistics, and Kinetics	not applicable (field simulation); from figure: 67-78% removal; Removal at 0.3 m 30-40% higher than at 0.7 m depth related to the dissolved oxygen in the wetland. Highest removal in July.			
Reference Substance and Reference Substance Results	not applicable (field simulation); Not Reported			
EVALUATION				
Domain	Metric	Rating	Comments	
Domain 1: Test Substance	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design was appropriate.
Domain 4: Test Organisms	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
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Study Citation:	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.			
OECD Harmonized Template:	Miscellaneous			
HERO ID:	5344596			
Domain		Metric	EVALUATION	
			Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were reported in the study with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some inconsistencies were found in the data reporting; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			High	

Study Citation:	Yu, Q., Yang, C., Ding, C. (2010). Treatment of 1,2-dichlorobenzene in pilot-scale constructed wetlands.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5344596

EXTRACTION

Parameter	Data
CASRN and Test Material	95-50-1; 1,2-Dichlorobenzene
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Simulated wastewater containing 50 mg/L glucose, 15 mg/L KH ₂ PO ₄ , 6.0 mg/L NH ₄ Cl and 2.0 mg/L o-DCB; 90 day study (July 10 to October 10, 2009); 5 d hydraulic retention time.; Concentrations measured at different HRT, different distances from source and at different levels in the constructed wetlands.
System Type Design	coarse sand horizontal subsurface flow constructed wetlands planted with Phragmites australis fed simulated wastewater from sealed tank; hydraulic retention time regulated
Sampling Frequency and Sampling Details	every 10 days; composite of bed effluents
Test Temperature	not applicable (field simulation)
Results Details	average 78% removal
Analytical Method and Analytical Details	GC-ECD; Samples extracted in hexane
Transformation Products, Statistics, and Kinetics	not applicable (field simulation); from figure: 79-83% removal; Removal at 0.3 m 30-40% higher than at 0.7 m depth related to the dissolved oxygen in the wetland. Higher degradation in July/August than September/October
Reference Substance and Reference Substance Results	not applicable (field simulation); Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4: Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6: Testing Conditions	High	Testing conditions were monitored, and appropriate for the method.
	Metric 7: Testing Consistency	High	Test conditions were consistent.
	Metric 8: System Type and Design	High	The system type and design was appropriate.
Domain 4: Test Organisms			
	Metric 9: Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.

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OECD Harmonized Template:	Miscellaneous			
HERO ID:	5344596			
Domain		Metric	EVALUATION Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some inconsistencies were found in the data reporting; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.
Overall Quality Determination			High	

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

Term	Definition
BAF	Biaccumulation Factor
BCF	Bioconcentration Factor
BMF	Biomagnification Factor
BSAF	Biota-sediment Accumulation Factor
C	Concentration
CASRN	Chemical Abstract Service registry number
DOC	Dissolved Organic Carbon
dw	Dry weight
DW	Drinking Water
DWTP	Drinking Water Treatment Plant
EPA	Environmental Protection Agency
ESI	Electrospray Ionisation
FID	Flame Ionisation Detector
FPD	Flame Photometric Detector
GC	Gas Chromatography
g/L	Grams per Liter
HLC	Henry's Law Constant
HPLC	High-performance liquid chromatography
ISO	International Organization for Standardization
K _{oa}	Octanol-Air partition coefficient
K _{oc}	Organic carbon-water partition coefficient
K _{ow}	Octanol-Water partition coefficient
L/d	Liters per day
LOD	Limit of Detection
LOQ	Limit of Quantification
lw	Lipid weight
M	Molarity (mol/L = moles per Liter)
mL/min	Milliliters per minute
mM	Millimolar
MDL	Method Detection Limit
mg/kg	Milligrams per Kilogram
mg/L	Milligrams per Liter
mg/m ³	Milligrams per cubic meter
MRL	Method Reporting Limit
MS	Mass Spectrometry
n	Sample Size
N/A	Not applicable
ND	Non-Detection
ng/L	Nanograms per Liter

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Term	Definition
nm	Nanometers
NR	Not Reported
OECD	Organisation for Economic Co-operation and Development
· OH	Hydroxyl radical
OPE	Organophosphate Ester
pg/L	Picograms per Liter
ppm	parts per million
QSAR	Quantitative Structure Activity Relationship
RSD	Relative Standard Deviation
SI	Supplemental Information
SIM	Selected Ion Monitoring
SPE	Solid Phase Extraction
STP	Sewage Treatment Plant
TMF	Trophic Magnification Factor
TOC	Total Organic Carbon
TOF	Time of Flight
µg/L or µg/mL	micrograms per liter or per milliliter
UPLC	Ultra-performance liquid chromatography
US or USA	United States of America
UV (UV-Vis)	Ultra Violet (Visible)
ww	Wet Weight
WWTP	Wastewater Treatment Plant