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Data Quality Evaluation and Data Extraction Information for Environmental Fate and Transport for Octamethylcyclotetrasiloxane (D4)

Systematic Review Support Document for the Draft Risk Evaluation

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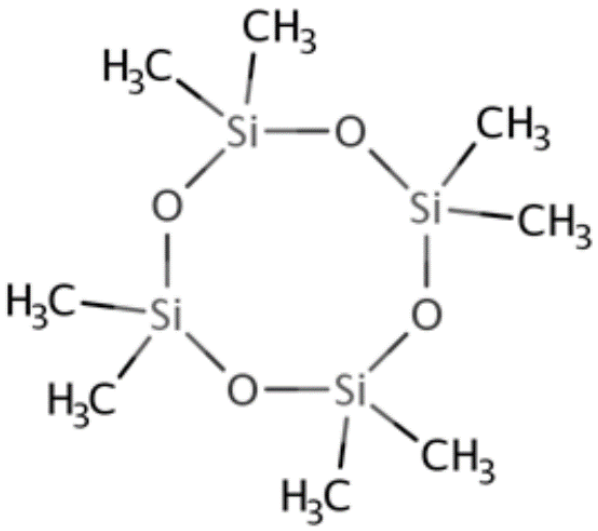

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This supplemental file contains information regarding the data extraction and evaluation results for data sources that were considered for the *Draft Risk Evaluation for Octamethylcyclotetrasiloxane (D4)* and that underwent systematic review. EPA used the TSCA systematic review process described in the *Draft Systematic Review Protocol Supporting TSCA Risk Evaluations for Chemical Substances* (also referred to as the '2021 Draft Systematic Review Protocol'). The systematic review steps are further described in the *Draft Systematic Review Protocol for Octamethylcyclotetrasiloxane (D4)*. 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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6836352	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.	**585**
6833877	Xu, L., Shi, Y., Cai, Y. (2013). Occurrence and fate of volatile siloxanes in a municipal wastewater treatment plant of Beijing, China. Water Research 47(2):715-724.	**588**
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6836181	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.	**614**
2535051	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.	**616**
6833870	Xu, S., Warner, N., Bohlin-Nizzetto, P., Durham, J., Mcnett, D. (2019). Long-range transport potential and atmospheric persistence of cyclic volatile methylsiloxanes based on global measurements. Chemosphere 228:460-468.	**632**
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6834194	Zhang, Y. (2014). Analysis of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane in wastewater, sludge and river samples by headspace gas chromatography/mass spectrometry.	**638**
6833820	Zhang, Y., Zeng, G., Shen, M., Tian, Y. (2018). Cyclic volatile methylsiloxanes in sediment, soil, and surface water from Dongting Lake, China. Journal of Soils and Sediments 18(5):2063-2071.	**642**

Other Properties

List of Abbreviations and Acronyms for Data Quality Evaluation and Extraction Tables **644**

Study Citation:	Abe, Y., Butler, G. B., Hogen-Esch, T. E. (1981). Photolytic oxidative degradation of octamethylcyclotetrasiloxane and related compounds. Journal of Macromolecular Science: Part A - Chemistry 16(2):461-471.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835713

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	Not reported; 25°C
Light Source, Intensity, and additional light details	150-W xenon-mercury lamp; Not reported; Irritated from 6 cm distance
Source Wavelength Lower and Upper	290 nm; Not reported
Test Details and Control	1L Pyrex flask with 10 cm pathlength quartz cell, Swagelock valve for sampling, and ozone generation by coper wire and tesla coil. Ozone concentration: 1.20E-3 to 1.70E-3 mol/L Gas system: 20% O2, 80% N2. Absorbed water in test vessel was removed by vacuum at 10E-5 - 10E-6 mm Hg at 350°C.; Absence of ozone: degradation negligiblePure ozone: 2% degradation
Initial Concentration, Reference Compound	3.2E-5 mol/L; Perfluoroheptane
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; 50 minutes; 70 minutes
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Not Reported; Not Reported
Method Details Results and Products Details Results	Test substance degradation quantified by GC/mass spectrometry; Two products identified by structure
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Negligible degradation; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	log HL_D4 = -1.21 log [O3]_0 - 1.75, Where HL_D4 = test substance half-life, and [O3]_0 = initial ozone concentration; Not Reported; Half-life: 65 - 70 min at ozone concentration 1.70E-3 mol/L, O3/D4 ratio: 53Half-life: 50 - 55 min at ozone concentration 1.20E-3 mol/L, O3/D4 ratio: 37, H2O/D4 ratio: 1.7

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	High	A reference substance and ozone controls were included and responded within a valid range.

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Study Citation:	Abe, Y., Butler, G. B., Hogen-Esch, T. E. (1981). Photolytic oxidative degradation of octamethylcyclotetrasiloxane and related compounds. Journal of Macromolecular Science: Part A - Chemistry 16(2):461-471.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835713

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Most appropriate test conditions were reported, however the upper wavelength for the light source was not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	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 photodegradation half-lives.
	Metric 12:	Test Substance Purity	Medium	General sampling methods reported were appropriate, frequency was not reported but was presumably acceptable for determining half-lives.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were noted.
	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 raw data were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The equation relating half-life to ozone concentration was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but were not compared to previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Abe, Y., Butler, G. B., Hogen-Esch, T. E. (1981). Photolytic oxidative degradation of octamethylcyclotetrasiloxane and related compounds. Journal of Macromolecular Science: Part A - Chemistry 16(2):461-471.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835713

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	Not reported; 25°C
Light Source, Intensity, and additional light details	150-W xenon-mercury lamp; Not reported; Irritated from 6 cm distance
Source Wavelength Lower and Upper	290 nm; Not reported
Test Details and Control	1L Pyrex flask with 10 cm pathlength quartz cell, Swagelock valve for sampling, and ozone generation by coper wire and tesla coil. Ozone concentration: 6.20E-4 to 1.70E-3 mol/L Gas system: 20% O2, 80% N2.; Absence of ozone: degradation negligiblePure ozone: 2% degradation
Initial Concentration, Reference Compound	3.2E-5 mol/L; Perfluoroheptane
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; 37 minutes; 130 minutes
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Not Reported; Not Reported
Method Details Results and Products Details Results	Test substance degradation quantified by GC/mass spectrometry; Two products identified by structure
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Negligible degradation; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	log HL_D4 = -1.21 log [O3]_0 - 1.75, Where HL_D4 = test substance half-life, and [O3]_0 = initial ozone concentration; Not Reported; Half-life: 120 - 130 min at ozone concentration 6.20E-4 mol/L, O3/D4 ratio: 19Half-life: 37 min at ozone concentration 1.7E-3 mol/L, O3/D4 ratio: 53 Half-life: 60 min at ozone concentration 1.15E-3 mol/L, O3/D4 ratio: 36Half-life: 37 - 40 min at ozone concentration 1.10E-3 mol/L, O3/D4 ratio: 34, H2O/D4 ratio: 5.2

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	High	A reference substance and ozone controls were included and responded within a valid range.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage conditions were not reported.

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Study Citation:	Abe, Y., Butler, G. B., Hogen-Esch, T. E. (1981). Photolytic oxidative degradation of octamethylcyclotetrasiloxane and related compounds. Journal of Macromolecular Science: Part A - Chemistry 16(2):461-471.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835713

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method is suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Most appropriate test conditions were reported, however the upper wavelength for the light source was not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	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 photodegradation half-lives.
	Metric 12:	Test Substance Purity	Medium	General sampling methods reported were appropriate, frequency was not reported but was presumably acceptable for determining half-lives.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were noted.
	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 raw data were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The equation relating half-life to ozone concentration was reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but were not compared to previous studies.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Alton, M. W., Browne, E. C. (2020). Atmospheric chemistry of volatile methyl siloxanes: Kinetics and products of oxidation by OH radicals and CL atoms. Environmental Science & Technology 54(10):5992-5999.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6833978

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	no; Acros Organics; NR; 98%
Duration and Test Temperature	not reported; 297±3 K
Light Source, Intensity, and additional light details	General Electric, G36T8; not reported; not reported
Source Wavelength Lower and Upper	not reported; 254 nm
Test Details and Control	Lights were used to form ozone subsequently photolyzed and reaction with H2O formed OH radicals average concentration 1.2X10+6 molecules/cu cm. Concentrations were measured using a High-Resolution Chemical Ionization Time-of-Flight Mass Spectrometer .; not reported
Initial Concentration, Reference Compound	not reported; octamethyltrisiloxane (L2); propionic acid (PA); methyl ethyl ketone (MEK)
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	not reported; not reported; not reported
Method Details Results and Products Details Results	Not Reported; Oxidation products were formed and reported in supporting data.
Parameter Value and Parameter Results	1.3X10−12 cu cm/molec-sec; Reaction rate with OH radical
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Reaction rate with OH radical: L2 = (1.28±0.08) X10-12; PA = (1.2±0.2) X10-12; MEK = (1.1±0.3) X10-12 cu cm/molec/sec; not reported; ±0.1X10−12 cu cm/molec/sec
Results Remarks, Sample time Results, Results Details	The rate constants are determined via a relative rate analysis.; not reported; Not Reported

EVALUATION

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

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Study Citation:	Alton, M. W., Browne, E. C. (2020). Atmospheric chemistry of volatile methyl siloxanes: Kinetics and products of oxidation by OH radicals and CL atoms. Environmental Science & Technology 54(10):5992-5999.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6833978

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the test were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 as defined by reference substance and were consistent with related physical chemical properties.

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Study Citation:	Alton, M. W., Browne, E. C. (2020). Atmospheric chemistry of volatile methyl siloxanes: Kinetics and products of oxidation by OH radicals and CL atoms. Environmental Science & Technology 54(10):5992-5999.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6833978

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:	Alton, M. W., Browne, E. C. (2020). Atmospheric chemistry of volatile methyl siloxanes: Kinetics and products of oxidation by OH radicals and CL atoms. Environmental Science & Technology 54(10):5992-5999.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6833978

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	no; Acros Organics; NR; 98%
Duration and Test Temperature	not reported; 297±3 K
Light Source, Intensity, and additional light details	General Electric, F40BL; not reported; not reported
Source Wavelength Lower and Upper	not reported; 370 nm
Test Details and Control	Lights were used to form Cl atoms, average concentration 620 molecules/cm3. Concentrations were measured using a High-Resolution Chemical Ionization Time-of-Flight Mass Spectrometer .; not reported
Initial Concentration, Reference Compound	not reported; methyl ethyl ketone (MEK); diethyl ether (DE)
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	not reported; not reported; not reported
Method Details Results and Products Details Results	Not Reported; Oxidation products were formed and reported in supporting data.
Parameter Value and Parameter Results	1.16X10-10 cu cm/molec/sec; Reaction rate with Cl ion
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Reaction rate with Cl ion: MEK = (0.4±0.1) X10-10; DE = (2.5±0.2)X10-10 cu cm/molec/sec; not reported; ± 0.06X10-10 cu cm/molec/sec
Results Remarks, Sample time Results, Results Details	The rate constants are determined via a relative rate analysis.; not reported; Not Reported

EVALUATION

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

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Study Citation:	Alton, M. W., Browne, E. C. (2020). Atmospheric chemistry of volatile methyl siloxanes: Kinetics and products of oxidation by OH radicals and CL atoms. Environmental Science & Technology 54(10):5992-5999.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6833978

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the test were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 as defined by reference substance and 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:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octmethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Hydroxyl radical reactions
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Phillips Speciality Chemicals; NR; 98% Notes: (-(CH3)2SiO-)4; no impurities were found by GC-FID
Duration and Test Temperature	2-20 minutes; 297±2 K
Light Source, Intensity, and additional light details	two parallel banks of black lamps; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	Details referenced. Rate constants or upper limits to the rate constants for the reaction of the (-(CH3)2SiO-)4 with OH radicals was determined by using relative rate techniques in which the decay rates of the (-(CH3)2SiO-)4 and cyclohexane were monitored in the presence of OH radicals; total air pressure 740 torr; not reported
Initial Concentration, Reference Compound	~2.4 X10+13 molecule/cm3; cyclohexane
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	reaction rate with OH radical; Not reported; 1.01x10^-12 (±0.32) cm3/molecule·sec
Method Details Results and Products Details Results	GC-FID; (-(CH3)2SiO-)4 precision ≤3%; cyclohexane precision ≤1%; not reported
Parameter Value and Parameter Results	Not reported; Not reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	reaction rate for cyclohexane 7.47X10-12 cm3/molecule.sec; not reported; Not Reported
Results Remarks, Sample time Results, Results Details	The dominant gas-phase chemical loss process is by reaction with OH radical; not reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	High	The source 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:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
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 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.
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:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

EVALUATION

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

Study Citation:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octmethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: NO3 radical reactions
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Phillips Speciality Chemicals; NR; 98% Notes: (-(CH3)2SiO-)4; no impurities were found by GC-FID
Duration and Test Temperature	2-20 minutes; 297±2 K
Light Source, Intensity, and additional light details	two parallel banks of black lamps; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	details referenced. Rate constants for the reaction of the (-(CH3)2SiO-)4 with NO3 radicals was determined by using relative rate techniques in which the decay rates of the (-(CH3)2SiO-)4 and n-heptane were monitored in the presence of NO3 radicals; total air pressure 740 torr; not reported
Initial Concentration, Reference Compound	~2.4 X10+13 molecule/cm3; n-heptane (~2.4 X 10^13 molecule/cm3)
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	reaction rate with NO3 radical; not applicable; <2X10^-16 cm3/molecule·sec
Method Details Results and Products Details Results	GC-FID; (-(CH3)2SiO-)4 precision ≤3%; n-heptane precision ≤2%; not reported
Parameter Value and Parameter Results	Not reported; Not reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	reaction rate for n-heptane 1.37X10-16 cm3/molecule.sec; not reported; not reported
Results Remarks, Sample time Results, Results Details	NO3 radical reactions are of minor significance of (-(CH3)2SiO-)4 degradation in air.; not reported; Not Reported

EVALUATION

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

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Study Citation:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
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 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.
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:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octmethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; other: O3 reactions in air
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Phillips Speciality Chemicals; NR; 98% Notes: (-(CH3)2SiO-)4; no impurities were found by GC-FID
Duration and Test Temperature	171-241 minutes; 297±2 K
Light Source, Intensity, and additional light details	two parallel banks of black lamps; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	details referenced. Rate constants for the reaction of the (-(CH3)2SiO-)4 with O3 was determined by using relative rate techniques in which the decay rates of the (-(CH3)2SiO-)4 and n-heptane were monitored in the presence of O3; total air pressure 740 torr; not reported
Initial Concentration, Reference Compound	~2.4 X10^13 molecule/cm3; n-heptane (~2.4 X 10+13 molecule/cm3)
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	reaction rate with O3; not applicable; <3X10^-20 cm3/molecule·sec
Method Details Results and Products Details Results	GC-FID; (-(CH3)2SiO-)4 precision ≤3%; n-heptane precision ≤2%; 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	O3 reactions with (-(CH3)2SiO-)4 in air are negligible.; not reported; Not Reported

EVALUATION

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

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Study Citation:	Atkinson, R. (1991). Kinetics of the gas-phase reactions of a series of organosilicon compounds with OH and NO3 radicals and O-3 at 297 +/- 2-K. Environmental Science & Technology 25(5):863-866.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835897

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
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 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.
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:	Bernard, F., Papanastasiou, D. K., Papadimitriou, V. C., Burkholder, J. B. (2018). Temperature dependent rate coefficients for the gas-phase reaction of the OH radical with linear (L2, L3) and cyclic (D3, D4) permethylsiloxanes. Journal of Physical Chemistry A 122(17):4252-4264.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835955

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; absolute rate coefficient measurements of indirect photolysis by hydroxyl radical
Solvent, Reactivity, Storage, Stability	NR; NR; Stored under vacuum in a Pyrex reservoir.; NR
Radiolabel, Source, State, Purity	NR; NR; NR; 98% Notes: Samples degassed in freeze-pump thaw cycles at 77 K.
Duration and Test Temperature	Not reported; 294 - 295 K (21.9°C)
Light Source, Intensity, and additional light details	Pulsed laser photolysis-laser induced fluorescence (KrF excimer laser); Not reported; Photolysis laser fluence: 3.6 - 4.3 mJ/cm^2 pulse
Source Wavelength Lower and Upper	248 nm; Not reported
Test Details and Control	Laser beams passed through jacketed multiport 150 cm^3 Pyrex reactor to produce 8.9E13 - 16.1E13 molecules/cm^2 hydroxyl radicals from H2O2. The test substance in He carrier gas was then introduced to the test system (100 torr He) for rate measurements.; Not reported
Initial Concentration, Reference Compound	0.19E15 - 2.65E15 Molecules/cm^3; 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	Hydroxyl radical reaction (global fit at 295 K); 1.12±0.01E-12 cm^3/molecule*s; Not Reported
Method Details Results and Products Details Results	Online infrared (FTID with multipass absorption cell) and UV absorption measurements (Hg pen-ray lamp 184.95 nm light source, 25 cm absorption cell, 185 nm band-pass filter photodiode); 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	ln ([OH]t/[OH]0) = -(k[D4] + k_d)t = -k'*tWhere K' and K_d are pseudo first-order rate coefficients in the presence and absence of D4, respectivelyAtmospheric lifetime based on OH concentration of 1E6 molecules/cm^3: 13 days; Not Reported; Range: 1.09±0.04 to 1.13±0.03 cm^3/molecule·sec; rate coefficients independent of variations in laser fluence, initial OH concentration and linear gas flow velocity.

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 purity but not source 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 storage were reported.

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Study Citation:	Bernard, F., Papanastasiou, D. K., Papadimitriou, V. C., Burkholder, J. B. (2018). Temperature dependent rate coefficients for the gas-phase reaction of the OH radical with linear (L2, L3) and cyclic (D3, D4) permethylsiloxanes. Journal of Physical Chemistry A 122(17):4252-4264.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835955

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate test conditions and test system set up were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining indirect photolysis.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were described and appropriate, sampling frequency was not reported but was presumably appropriate for rate constant determination.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, test substance measurements had $< 4\%$ uncertainty.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but were unable to be compared to previous studies but were put into broader context of atmospheric behavior.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Bernard, F., Papanastasiou, D. K., Papadimitriou, V. C., Burkholder, J. B. (2018). Temperature dependent rate coefficients for the gas-phase reaction of the OH radical with linear (L2, L3) and cyclic (D3, D4) permethylsiloxanes. Journal of Physical Chemistry A 122(17):4252-4264.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835955

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported; relative rate coefficient measurements of indirect photolysis by hydroxyl radical
Solvent, Reactivity, Storage, Stability	NR; NR; Stored under vacuum in a Pyrex reservoir.; NR
Radiolabel, Source, State, Purity	NR; NR; NR; 98% Notes: Samples degassed in freeze-pump thaw cycles at 77 K.
Duration and Test Temperature	Not reported; 294 K (21.9°C)
Light Source, Intensity, and additional light details	Pulsed laser photolysis-laser induced fluorescence (KrF excimer laser); Not reported; 10 Hz photolysis beam, ~ 7-12 mJ/cm^2 pulse
Source Wavelength Lower and Upper	248 nm; Not reported
Test Details and Control	100 cm long cylindrical Pyrex reactor connected to FTIR multipass infrared absorption cell (485 cm path length). OH radicals produced from H2O2. Test substance in He gas (~ 300 torr total pressure); ozone added as gas was circulated and irradiated. H2O = 3.6-4.9E17 molecules/cm^3; O2 = 2.2E17 molecules/cm^3; Dark control loss negligible
Initial Concentration, Reference Compound	3.4E14 Molecules/cm^3; 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	Hydroxyl radical reaction (global fit at 295 K); 1.07±0.02E-12 cm^3/molecule*s; Not Reported
Method Details Results and Products Details Results	Loss of test substance monitored relative to reference substance.; Not reported
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	D3: k_ref = 0.823E-12 cm^3/molecule·s; k/k_ref = 1.30±0.02; initial concentration: 3.6E14 molecules/cm^3; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	ln ([D4}0/[D4]t) = k/k_ref*ln([ref]0/[ref]t)Atmospheric lifetime based on OH concentration of 1E6 molecules/cm^3: 13 days; Not Reported; Good agreement with direct measurements.

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 purity but not source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included and test substance loss was negligible.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage were reported.
Domain 3: Test Conditions			

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Study Citation:	Bernard, F., Papanastasiou, D. K., Papadimitriou, V. C., Burkholder, J. B. (2018). Temperature dependent rate coefficients for the gas-phase reaction of the OH radical with linear (L2, L3) and cyclic (D3, D4) permethylsiloxanes. Journal of Physical Chemistry A 122(17):4252-4264.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6835955

			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	Appropriate test conditions and test system set up were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining indirect photolysis.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were described and appropriate, sampling frequency was not reported but was presumably appropriate for rate constant determination.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate, test substance measurements had $< 4\%$ uncertainty.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method, were compared to previous studies, and were put into broader context of atmospheric behavior.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Dow Corning, (1980). Photochemical oxidation of methylsilicon moieties (hexamethyldisiloxane and octamethylcyclotetrasiloxane) in the gas phase with cover letter dated 04/20/94.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5885405

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	Not reported; Ambient temperature
Light Source, Intensity, and additional light details	General Electric 275-RS; Not reported; Major intensity at 370 nm
Source Wavelength Lower and Upper	290 nm; 450 nm
Test Details and Control	Carried out in glass or Teflon vessels; Not reported
Initial Concentration, Reference Compound	7.2E-04 mol/L; n-hexane
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Not Reported; Not Reported
Method Details Results and Products Details Results	Gas samples removed via pressure-lock precision gas sampling syringe, analyzed by gas-liquid chromatography, IR analysis (product analysis) and GC-MS analysis; Demethylated silicon compounds and CO2
Parameter Value and Parameter Results	0.50 and 1.1; Half-lives in Teflon and glass vessels, respectively
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	DT50 = 0.39 d; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	Pseudo-first order half-lives; Not reported; Reactions were slower in glass vessels than in Teflon

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	High	Dark controls and a reference substance were included and reported.
Metric 4:	Test Substance Stability	Medium	Test substance storage and preparation were not reported.
Domain 3: Test Conditions			

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Study Citation:	Dow Corning, (1980). Photochemical oxidation of methylsilicon moieties (hexamethyldisiloxane and octamethylcyclotetrasiloxane) in the gas phase with cover letter dated 04/20/94.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5885405

			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	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	System design was appropriate for this type of study and took multiple variables into consideration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining photolytic loss.
	Metric 12:	Test Substance Purity	Medium	Sampling methods and frequency were 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	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods used were appropriate; the limits of detection were not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and comparable to previous results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Kim, J., Xu, S. (2017). Quantitative structure-reactivity relationships of hydroxyl radical rate constants for linear and cyclic volatile methylsiloxanes. Environmental Toxicology and Chemistry 36(12):3240-3245.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	4166451

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Dow Chemical; NR; >99%
Duration and Test Temperature	Not reported; 25±1°C
Light Source, Intensity, and additional light details	Solar simulator (LS1000, Solar Light); Not reported; Not reported
Source Wavelength Lower and Upper	Not reported; Not reported
Test Details and Control	D4 was evaporated with hexane into an atmospheric chamber (134 L). An ozone generator was used to generate ozone which was photolyzed using solar light from a solar simulator, generating hydroxyl radicals. 45±5% relative humidity.; Blanks were included before and after analysis of samples.
Initial Concentration, Reference Compound	Not reported Not reported; Hexane
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	OH radical reaction rate constant cm^3 molecule^-1 s^-1; 0.95(±0.18)x10^-12; not reported
Method Details Results and Products	Rate constants were calculated in relation to the hexane rate constant. 10 experiments were included in calculating the mean rate constant. Nos. 1-5 had the same conditions, no. 6-9 changed initial D4 and hexane concentrations, and no. 10 changed ozone concentration.; not reported
Details Results	not reported; not reported
Parameter Value and Parameter Results	not reported; not reported; 0.18x10^-12
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	Not Reported; not reported; Half-life = 11 days (approx) based on figure S4

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 acceptable.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Method blanks were analyzed before and after a sampling sequence for quality control.
Metric 4:	Test Substance Stability	High	The test substance preparation and homogeneity were reported and appropriate.

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Study Citation:	Kim, J., Xu, S. (2017). Quantitative structure-reactivity relationships of hydroxyl radical rate constants for linear and cyclic volatile methylsiloxanes. Environmental Toxicology and Chemistry 36(12):3240-3245.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	4166451

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions were intentionally changed in some experiments but the changes did not significantly impact the rate constant.
	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 outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was clearly reported and does not effect the interpretation of 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 data reporting was appropriate and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods and kinetic calculations were clearly reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Navea, J. G., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). A laboratory and modeling study at the University of Iowa designed to better understand the atmospheric fate of D4 and D5.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6996526

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; calculation; other: Non-guideline: box model (rural, suburban, and urban) for the estimation of atmospheric fate
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA
Duration and Test Temperature	not applicable; not specified
Light Source, Intensity, and additional light details	Not Reported; not applicable; not applicable
Source Wavelength Lower and Upper	not applicable; not applicable
Test Details and Control	Box model based on data of hourly profiles for OH concentrations in urban (5.03E6 OH molecules/cm3), suburban(4.17E6 OH molecules/cm3), and rural (3.23E6 OH molecules/cm3) locations.; benzene
Initial Concentration, Reference Compound	10E6 kg/year (US emissions); benzene atmospheric lifetime calculated as 10 days
Substance Wavelength Lower and Upper	Not Reported; Not Reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Atmospheric lifetime = 7.4 days. Box modeling results for simulation during July assuming an emission profile of 0.02 kg/person-yr and mixing in urban, suburban and rural areas.; Atmospheric lifetime = 9.2-11.1 days. Based on previously reported OH rate constants 1.04X10-12 (Atkinson) and 1.26X10-12 (Sommerlade) and steady state OH concentrations of 7.7E5 molecules/cm3.
Method Details Results and Products Details Results	Not Reported; Not Reported
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not Reported; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A reference substance was modeled for comparison.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable.

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Study Citation:	Navea, J. G., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). A laboratory and modeling study at the University of Iowa designed to better understand the atmospheric fate of D4 and D5.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6996526

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable.
	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	N/A	The metric is not applicable.
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.

Overall Quality Determination High

Study Citation:	Rhone-Poulenc, (1990). Environmental fate of D4 with cover letter.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5899916

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; other: Photodegradation in air
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Duration and Test Temperature	not reported; not reported
Light Source, Intensity, and additional light details	not reported; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	experiments carried out in a Teflon chamber; not reported
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 Constant Lower and Upper	half-life: reaction with O3 >100 years, with OH 50-60 days (for a clean atmosphere (rural areas) and 12 hr/day irradiation; not reported; not reported
Method Details Results and Products Details Results	not reported; not reported
Parameter Value and Parameter Results	infinite; direct photodegradation
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	not reported; not reported; not reported
Results Remarks, Sample time Results, Results Details	not reported; not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Uninformative	Detail regarding this metric was not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Uninformative	Detail regarding this metric was not reported.
Metric 4:	Test Substance Stability	Uninformative	Detail regarding this metric was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	Detail regarding this metric was not reported.

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Study Citation:	Rhone-Poulenc, (1990). Environmental fate of D4 with cover letter.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5899916

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Low	Very limited detail regarding this metric reported.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.
	Metric 8:	System Type and Design	Medium	Detail regarding this metric was limited.
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	Uninformative	Detail regarding this metric was not reported.
	Metric 12:	Test Substance Purity	Uninformative	Detail regarding this metric was not reported.
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	Uninformative	Detail regarding this metric was 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 — Uninformative

Study Citation:	Safron, A., Strandell, M., Kierkegaard, A., Macleod, M. (2015). Rate Constants and Activation Energies for Gas-Phase Reactions of Three Cyclic Volatile Methyl Siloxanes with the Hydroxyl Radical. International Journal of Chemical Kinetics 47(7):420-428.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	2912068

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Fluka, Stockholm Sweden; NR; 99.0%
Duration and Test Temperature	not reported; 313-353 K
Light Source, Intensity, and additional light details	UV lamp; not reported; pen shaped; Ultra-Violet Products Ltd, Cambridge UK; air cooled
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	gas phase reaction chamber with online MS; OH radical concentration 1.42X10+8 to 2.16X10+9 molecules/cm3.; not reported
Initial Concentration, Reference Compound	3.3 % mole fraction; 20.6% mole fraction of cyclohexane
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	-OH reaction; 1.7X10-12 cm3 molecules−1 s−1; 2.2X10-12 cm3/molecules·sec
Method Details Results and Products Details Results	GC/MS with electron impact ionization in selective ion monitoring mode. R2 values of 0.852-0.998 for D4; D3TOH fragment identified in previous study.
Parameter Value and Parameter Results	6-11 days; half-life
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	R2 values of 0.969-0.999 for cyclohexane; not reported; not reported
Results Remarks, Sample time Results, Results Details	At the global average tropospheric temperature (255 K), the average extrapolated -OH reaction rate for D4 was 1.45X10-12 cm3 molecules−1 s−1 at a global average OH concentration of 10X6 molecules/cm3; 13-19.5 minutes; results extrapolated from 313-353 K to 298 K -OH reaction rates.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and structure.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control 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:	Safron, A., Strandell, M., Kierkegaard, A., Macleod, M. (2015). Rate Constants and Activation Energies for Gas-Phase Reactions of Three Cyclic Volatile Methyl Siloxanes with the Hydroxyl Radical. International Journal of Chemical Kinetics 47(7):420-428.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	2912068

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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	Medium	Minor limitations were identified in sampling methods of the outcome 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	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Safron, A., Strandell, M., Kierkegaard, A., Macleod, M. (2015). Rate Constants and Activation Energies for Gas-Phase Reactions of Three Cyclic Volatile Methyl Siloxanes with the Hydroxyl Radical. International Journal of Chemical Kinetics 47(7):420-428.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	2912068

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

Study Citation:	SEHSC, (2020). Request for risk evaluation under the Toxic Substances Control Act; Octamethylcyclotetrasiloxane (D4; CASRN: 556-67-2).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	7296376

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, Type, Guideline	none; experimental; other: 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
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	Not Reported; Not Reported
Initial Concentration, Reference Compound	Not Reported Not Reported; Not Reported
Substance Wavelength Lower and Upper	Not Reported; Not Reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not Reported; Not Reported; Not Reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Not Reported; Not Reported; Not Reported
Method Details Results and Products Details Results	Not Reported; Not Reported
Parameter Value and Parameter Results	Not Reported; Not Reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not Reported; Not Reported; Not Reported
Results Remarks, Sample time Results, Results Details	Half-life not reported; Not Reported; 3.08 x 10^-12 cm3/s OH radical reaction rate constant (300K)

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	Limited detail reported; primary source cited may have additional information.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Limited detail reported; primary source cited may have additional information.
Metric 4:	Test Substance Stability	Medium	Limited detail reported; primary source cited may have additional information.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Limited detail reported; primary source cited may have additional information.

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Study Citation:	SEHSC, (2020). Request for risk evaluation under the Toxic Substances Control Act; Octamethylcyclotetrasiloxane (D4; CASRN: 556-67-2).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	7296376

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 7:	Testing Consistency	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 8:	System Type and Design	Medium	Limited detail reported; primary source cited may have additional information.
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	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 12:	Test Substance Purity	Medium	Limited detail reported; primary source cited may have additional information.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited detail reported; primary source cited may have additional information.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Due to limited information, evaluation of the reasonableness of the study results was not possible
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Medium

* Related References: Bayer. 1990. Photochemical Degradability of octamethylcyclotetrasiloxane in gaseous phase.Bayer report, June 25, 1990. (Study Director: Parlar, H.) HERO ID: 6991904

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Duration and Test Temperature	NR; NR
Light Source, Intensity, and additional light details	NR; NR; NR
Source Wavelength Lower and Upper	Not Reported; Not Reported
Test Details and Control	NR; NR
Initial Concentration, Reference Compound	NR NR; NR
Substance Wavelength Lower and Upper	NR; NR
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Type Results, Indirect Rate Constant Lower and Upper	NR; NR; NR
Method Details Results and Products Details Results	FAP (Fate of Atmospheric pollutants) model; NR
Parameter Value and Parameter Results	NR; NR
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	NR; NR; NR
Results Remarks, Sample time Results, Results Details	NR; NR; atmospheric half-life of D4 will be several days based on the half-lives of n-hexane (3.92 days) and n-octane (2.74)

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 study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	This metric does not apply to this study type.
Metric 4:	Test Substance Stability	N/A	This metric does not apply to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	This metric does not apply to this study type.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	This metric does not apply to this study type.
	Metric 7:	Testing Consistency	N/A	This metric does not apply to this study type.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	This metric does not apply to this study type.
	Metric 12:	Test Substance Purity	N/A	This metric does not apply to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	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	Uninformative	Data is a qualitative summary.
	Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	Lack of information was likely to have a substantial impact on study results
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	This metric does not apply to this study type.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — Uninformative

* Related References: No source cited but references the FAP (Fate of Atmospheric Pollutants) model on GEMS (Graphical Exposure Modeling System)

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5889398

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: A mixture of D4, oxygen, and ozone
Duration and Test Temperature	NR; NR
Light Source, Intensity, and additional light details	NR; NR; NR
Source Wavelength Lower and Upper	>290 nm; NR
Test Details and Control	NR; NR
Initial Concentration, Reference Compound	NR NR; NR
Substance Wavelength Lower and Upper	NR; NR
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Type Results, Indirect Rate Constant Lower and Upper	NR; NR; NR
Method Details Results and Products Details Results	Samples were withdrawn during the irradiation for analysis by GC/MS; NR
Parameter Value and Parameter Results	NR; NR
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	NR; NR; NR
Results Remarks, Sample time Results, Results Details	NR; NR; relative rates of disappearance: tetramethylsilane (0.55), n-octane (1.0), hexamethyldisiloxane (1.4), and D4 (3.3); indirect photolysis occurs; demonstrates that the reactivity of D4 with tropospheric oxidizing species is similar to the reactivity of n-hexane and n-octane.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified
Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; no source cited.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Not reported in this secondary source; no source cited.
Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; no source cited.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; no source cited.
Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; no source cited.
Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; no source cited.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; no source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this type of study
	Metric 10:	Sampling Methods	N/A	Not applicable for this type of study
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source; no source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; no source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; no source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this type of study
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; no source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source; no source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Not reported in this secondary source; no source cited.
	Metric 18:	QSAR Models	N/A	Not applicable for this type of study

Overall Quality Determination Medium

* Related References: citing Abe et al., 1981 (HERO ID 6835713)

Study Citation:	Sommerlade, R., Parlar, H., Wrobel, D., Kochs, P. (1993). Product analysis and kinetics of the gas-phase reactions of selected organosilicon compounds with OH radicals using a smog chamber-mass spectrometer system. Environmental Science & Technology 27(12):2435.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6834050

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Indirect photolysis with OH radicals
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Bayer AG, Germany; NR; NR
Duration and Test Temperature	irradiation times ranged from 2-300 min; 24°C; 297±2K (70 torr)
Light Source, Intensity, and additional light details	high-pressure mercury lamp; not specified; maximum light intensity used; HPK 125 W, Phillips
Source Wavelength Lower and Upper	≥290 nm; not reported
Test Details and Control	20L smog chamber-mass spectrometer system; not reported
Initial Concentration, Reference Compound	2.8E15 mol/cc; n-hexane
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	Half-life = 8.3 days; 1.26±0.40E-12 cm3/molecule·sec; not reported
Method Details Results and Products Details Results	GC/MS-FID (negative chemical ionization) and GC-FTIR (reaction products); Heptamethyl(hydroxymethyl)cyclotetrasiloxane, heptamethylhydroxycyclotetrasiloxane, heptamethyl(hydroperoxymethyl)cyclotetrasiloxane, bis-(heptamethylcyclotetrasiloxanyl) ether, and 1,2-bis(heptamethylcyclotetrasiloxanyl)ethane. Of these products, heptamethylhydroxycyclotetrasiloxane gave the highest yield (19.95% of the total amount of GC-detectable substances).
Parameter Value and Parameter Results	not reported; not reported
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	not reported; 50%/12.7 days (value reported in ECHA); not reported
Results Remarks, Sample time Results, Results Details	Half-life = 8.3 days based on tropospheric concentrations of OH radicals = 7.7E5 molecule/cm3 over 24hrs (based on the equation: t1/2 = 0.6931/(Rate const.X[OH]) = t sec.); not reported; not reported

EVALUATION

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

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Study Citation:	Sommerlade, R., Parlar, H., Wrobel, D., Kochs, P. (1993). Product analysis and kinetics of the gas-phase reactions of selected organosilicon compounds with OH radicals using a smog chamber-mass spectrometer system. Environmental Science & Technology 27(12):2435.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	6834050

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding the test substance preparation and storage conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the 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 across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods were not fully reported; however, the omissions were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reported was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The kinetic calculations were described in detail.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study.

Overall Quality Determination — High

* Related References: ECHA rating: 2

Study Citation:	UFL, (1977). Ultraviolet degradation studies on octamethylcyclotetrasiloxane and related compounds with cover letter dated 04/20/94.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5885327

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning; Liquid; approx. 98% Notes: D4; analyzed with GC/MS approx. 2% was D3 and D5.
Duration and Test Temperature	not reported; not reported
Light Source, Intensity, and additional light details	2.5 Kw Mercury-Xenon Compact Arc Lamp; not reported; high intensity quarter meter grating monochrometer
Source Wavelength Lower and Upper	240 nm; 400 nm
Test Details and Control	150 mm Hg of oxygen, 6.2X10-4 mol/L O3 (610 mm Hg) and D4 added to reaction vessel which then was irradiated using UV light source with broad spectrum wavelength.; not reported
Initial Concentration, Reference Compound	not reported; perfluoroheptane
Substance Wavelength Lower and Upper	246 nm; 268 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Ozone; not reported; not reported
Method Details Results and Products Details Results	GC/MS; 78% recovery.; more than 30 degradation products with molecular weights of 300-623
Parameter Value and Parameter Results	120-130 minutes; half-life in oxygen with ozone
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	not reported; not reported; not reported
Results Remarks, Sample time Results, Results Details	Presence of water accelerated the rate of degradation by about a factor of 2 (half-life 60-70 min with ambient moisture); half-lives with 5.6E-5 and 1.7E-4 mol/L water added were 50-55 min and 37-40 min, respectively.; not reported; Half-life was estimated from the relationship of compds/perfluoroheptane ratio vs. irradiation time.

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 identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	UFL, (1977). Ultraviolet degradation studies on octamethylcyclotetrasiloxane and related compounds with cover letter dated 04/20/94.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5885327

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were 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 the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	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 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; 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 the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.

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Study Citation:	UFL, (1977). Ultraviolet degradation studies on octamethylcyclotetrasiloxane and related compounds with cover letter dated 04/20/94.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	5885327

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

Overall Quality Determination Medium

Study Citation:	Xiao, R., Zammit, I., Wei, Z., Hu, W. P., Macleod, M., Spinney, R. (2015). Kinetics and Mechanism of the Oxidation of Cyclic Methylsiloxanes by Hydroxyl Radical in the Gas Phase: An Experimental and Theoretical Study. Environmental Science & Technology 49(22):13322-13330.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	3363844

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not reported; octamethycyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Indirect photolysis
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluka; NR; 99.0% Notes: D4
Duration and Test Temperature	not specified; 313-363K; 40-90°C
Light Source, Intensity, and additional light details	UV lamp; not reported; not reported
Source Wavelength Lower and Upper	not reported; not reported
Test Details and Control	gas-phase reaction chamber; intensity changes were used to calculaterate constants by the method of relative rates; k values were measured in duplicate at 40°C and 70°C, triplicate at 50°C, quadruplicate at 90°C, six times at 60°C, and seven times at 80°C; Degradation due to oxidation by ozone, oxygen, or direct photolysis was excluded by blank runs.
Initial Concentration, Reference Compound	0.2−0.45 mM; 2,2,4-Trimethylpentane (TMP)
Substance Wavelength Lower and Upper	not reported; not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	not reported; not reported; not reported
Indirect Type Results, Indirect Rate Constant Lower and Upper	Reaction with hydroxyl radical at 40, 50, 60, 70, 80 and 90°C; 1.78E-12 cm3·molecule/sec (at 80°C); 2.92E-12 cm3·molecule/sec (at 60°C)
Method Details Results and Products Details Results	GC-MS (EI+); not reported
Parameter Value and Parameter Results	4.5 days; Half-life based on OH concentration of 7.7E5 molecules·cm-3 and extrapolated rate constant at 298K = 2.34E-12 cm3·molecule/sec
Reference Substance Results, Percent Degradation Results and Standard Deviation Results	not reported; not reported; not reported
Results Remarks, Sample time Results, Results Details	Theoretically determined kinetics: the first step of oxidation is abstraction of a methylhydrogen via a transition state to form water and cyclosilane-methylene radical; not reported; Using Eckart's method tunneling correction factors based on lowest-energy conformers and the identified 4 transition state species involved in oxidation ranged from 1.84-5.18 and rate constants ranged from 0.37 to 1.64 cm3·molecule/sec with a sum = 2.90E-13 cm3·molecule/sec

EVALUATION

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

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Study Citation:	Xiao, R., Zammit, I., Wei, Z., Hu, W. P., Macleod, M., Spinney, R. (2015). Kinetics and Mechanism of the Oxidation of Cyclic Methylsiloxanes by Hydroxyl Radical in the Gas Phase: An Experimental and Theoretical Study. Environmental Science & Technology 49(22):13322-13330.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	3363844

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Control group details were not included; however, blanks were used to evaluate other loss processes.
	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	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric is not applicable to this type of study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited detail regarding this metric; however, this is not likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

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Study Citation:	Xiao, R., Zammit, I., Wei, Z., Hu, W. P., Macleod, M., Spinney, R. (2015). Kinetics and Mechanism of the Oxidation of Cyclic Methylsiloxanes by Hydroxyl Radical in the Gas Phase: An Experimental and Theoretical Study. Environmental Science & Technology 49(22):13322-13330.
OECD Harmonized Template:	Photolysis in Air
HERO ID:	3363844

EVALUATION

Domain	Metric	Rating	Comments

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6994688

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental; other: hydrolysis in lake sediment
Solvent, Reactivity, Storage, Stability	N,N-dimethylformamide; NR; NR; NR
Radiolabel, Source, State, Purity	14C-D4; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	not reported; 20–25°C; 3
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	8.0–8.2; up to 120 days
Sampling Frequency and Test Setup	various; open jars; water:sed ratio 5:1. Lake water: 42% sand; 44% silt; 14% clay; 2.95% organic carbon.
Concentration	ca 0.5 mg/kg wet weight
Analytical Method, Analytical Details, and Statistics	radiochem; HPLC; 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; 115 days
Results Remarks	~40 % of the total 14C is estimated to be lost by volatilization over the 120 day test period. Analysis of sediment confirmed the main species in the sediment solids was D4.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name, structure and CASRN.
	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	The metric is not applicable to the study type.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.

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Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6994688

Domain		Metric	Rating	Comments
			EVALUATION	
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	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	Medium	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 (if applicable) 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 not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Low

* Related References: Cites: Kozerski G E, Powell D E, and Shawl H R, 2007, Preliminary Assessment of the Lossand Degradation of Octamethylcyclotetrasiloxane (D4) in Natural Lake Sediments underLaboratory Conditions. Dow Corning Formal Technical Report, 2007-I0000-58163.Midland, MI: Dow Corning Corporation.

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6994688

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental; other: hydrolysis in lake sediment
Solvent, Reactivity, Storage, Stability	N,N-dimethylformamide; NR; NR; NR
Radiolabel, Source, State, Purity	14C-D4; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	not reported; 20–25°C; 3
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	8.0–8.2; up to 120 days
Sampling Frequency and Test Setup	various; open jars; water:sed ratio 5:1. River water: 80% sand; 16% silt; 4% clay; 1.11% organic carbon.
Concentration	ca 0.5 mg/kg wet weight
Analytical Method, Analytical Details, and Statistics	radiochem; HPLC; 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; 131 days
Results Remarks	~40 % of the total 14C is estimated to be lost by volatilization over the 120 day test period. Analysis of sediment confirmed the main species in the sediment solids was D4.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name, structure and CASRN.
	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	The metric is not applicable to the study type.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.

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Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6994688

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to 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	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	Medium	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 (if applicable) 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 not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination **Low**

* Related References: Cites: Kozerski G E, Powell D E, and Shawl H R, 2007, Preliminary Assessment of the Lossand Degradation of Octamethylcyclotetrasiloxane (D4) in Natural Lake Sediments underLaboratory Conditions. Dow Corning Formal Technical Report, 2007-I0000-58163.Midland, MI: Dow Corning Corporation.

Study Citation:	Dow Chemical, (2022). Hydrolysis kinetics of dimethylsiloxane-α,ω-diols: pH and temperature dependence.
OECD Harmonized Template:	Hydrolysis
HERO ID:	10706153

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental, calculation; None: non-guideline; abiotic hydrolysis products (pH and temperature dependance)
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	uniformly labeled 14C-D4; Not Reported; Not Reported; Not Reported
Buffer, Test Temperature, Number of Replicates	aqueous buffer; 10, 25, 35°C; replicates were performed in certain experiments
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	pH 4, 7, 9; 500 hours
Sampling Frequency and Test Setup	sampling was performed but frequency was not reported; Hydrolysis study of D4 at all variations of pH 4, 7, or 9 and temperatures of 10, 25, or 35°C were previously conducted. Relative concentrations of uniformly labeled 14C-D4 and 14C-labeled reaction products were analyzed over time. Results of the pH 4 experiments, non-negligible estimates of k4 were always obtained, with resulting k4/k3 ratios in a narrow range between 0.23 and 0.29, which suggested that tetramer diol underwent hydrolysis by reaction at both the internal and terminal siloxane bond positions under acid catalyzed conditions. Results at pH 7 and 9 k4 was very small when compared to k3, suggesting that hydrolysis of the terminal siloxane bond of tetramer diol was highly dominant under conditions governed by hydroxide ion catalysis.Experiments at pH 9 and 10C and 35C had data points outside the expected (less reliable due to method limitations) which altered the curve fitting results and were not considered in the kinetics.
Concentration	NR - NR
Analytical Method, Analytical Details, and Statistics	Chromatographic analysis at selected reaction times via total radioactivity in disintegrations per minute (dpm) resulting from D4 or reaction products; Using the dpm values, relative molar concentrations were obtained. Curve-fitting of the data (reaction time and relative concentration) was performed with the differential equation solver module (DEQSOL) of SIMFIT (Bardsley, 2022).; The software includes simulation, curve fitting, plotting, statistics and numerical analysis.
Transformation Products	tetramer diol - Octamethyltetrasiloxane-1,7-diol (CAS 3081-07-0); trimer diol - Hexamethyltrisiloxane-1,5-diol (CAS 3663-50-1); dimer diol - Tetramethyldisiloxane-1,3-diol (CAS 1118-15-6); DMSD - 1,1-Dimethylsilanediol (CAS 1066-42-8)
Reference Substance and Reference Substance Results	not applicable; not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	With the exception of the pH 9, 35 °C experiments, the coefficients of determination for the overall fits were 0.991 or greater.; First-order rate constants from curve fitting analysis of data sets for reactions described are reported in table 1 of paper (R-squared values 0.9846-0.9987). Arrhenius parameters for reactions described are reported in table 2 of paper; obtained from linear regression analysis of combined rate constants (R-squared values 0.9630-0.9998).; Hydrolysis at pH 7: Calculated half-life (k3+k4) = 40 days (12°C), 6.9 days (25°C), and 1.6 days at 37°C. Experimental half-life based on rate constant averages = 6.8 days at 25°C. Note k3 and k4 were combined for the tetramer diol; however k4 at pH 7 was negligible. Calculated half-life (k5) = 55 days (12°C), 8.2 days (25°C), and 1.7 days at 37°C. Experimental half-life based on rate constant averages = 8.4 days at 25°C. Calculated half-life (k6) = 40 days (12°C), 7.3 days (25°C), and 1.8 days at 37°C. Experimental half-life based on rate constant averages = 6.1 days at 25°C.
Results Remarks	Reaction pathway for the complete conversion of D4 to dimethylsilanediol is proposed (figure 1 of paper). k1 = (pseudo) first-order rate constant for the ring-opening hydrolysis of D4. k2 (pseudo) first-order rate constant for the reverse intramolecular condensation reaction of tetramer diol. k3 = rate constant for the hydrolytic cleavage of the terminal −SiMe2OH group from the tetramer diol. k4 = rate constant for the hydrolysis of the tetramer diol at internal siloxane bond (producing two dimer diols). k5 = rate constant for the hydrolytic cleavage of the terminal −SiMe2OH group from the trimer diol. k6 = rate constant for the hydrolytic cleavage of the terminal −SiMe2OH group from the dimer diol (most difficult to derive because of sampling points and D4 optimized parameters of the study).

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Study Citation:	Dow Chemical, (2022). Hydrolysis kinetics of dimethylsiloxane-α,ω-diols: pH and temperature dependence.
OECD Harmonized Template:	Hydrolysis
HERO ID:	10706153

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively (established nomenclature, CASRN, and structure reported).
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were not reported; however, this detail is likely in the study cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Control groups were not required for this study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	Medium	Limited detail regarding this metric; however, additional information is likely in the study cited.
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	High	The outcome assessment methodology was appropriate.
	Metric 12:	Test Substance Purity	Medium	Sampling method detail was limited but expected to be appropriate.
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.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and kinetic calculations were included and addressed the datasets.
Domain 8: Other				

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Study Citation:	Dow Chemical, (2022). Hydrolysis kinetics of dimethylsiloxane-α,ω-diols: pH and temperature dependence.
OECD Harmonized Template:	Hydrolysis
HERO ID:	10706153

EVALUATION

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

Overall Quality Determination High

* Related References: This paper references and analyzes results from a previous study HERO ID 6987839.

Study Citation:	Dow Corning, (1980). Aqueous environmental chemistry of siloxanes and siloxanols.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5910397

EXTRACTION

Parameter	**Data**
CASRN and Test Material	1066-42-8; Dimethylsilanediol
Confidentiality, Type, Guideline	None; Experimental; other: Hydrolysis at various pH
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Available laboratory sample; NR; NR Notes: Used after distillation and analysis
Buffer, Test Temperature, Number of Replicates	NA; Not reported; Not reported
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	4, 7, 10, unbuffered; 98 days
Sampling Frequency and Test Setup	Not reported; 1L gas sampling bulb charged with water and D4
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Analyzed via GLC using a modified version of the Aqueous Silanol Functionality Test (ASFT); Not Reported; Not reported
Transformation Products	Dimethylsilanediol
Reference Substance and Reference Substance Results	None reported; None reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; Not reported; Percent of D4 charged which was detected as dimethyldisilanol: 0.022% at pH4, 0.010% at pH 7, 0.069% at pH 10, and 0.030% in unbuffered water after 98 days.
Results Remarks	As the results were low, the authors stated that the results might represent solubility in water rather than hydrolysis

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test substance was reported by name.
Metric 2:	Test Substance Purity	Medium	Test substance source and purity reported vaguely as laboratory samples which were distilled and analyzed.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	This metric is not applicable for this type of study.
Metric 4:	Test Substance Stability	N/A	This metric is not applicable for this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	The test method was unsuitable as the test substance was not dissolved in water but rather was a layer on top of the water.
Metric 6:	Testing Conditions	Low	Some conditions, such as temperature, sampling time, and light/dark were not reported.
Metric 7:	Testing Consistency	Low	Unclear if replicates were run.

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Study Citation:	Dow Corning, (1980). Aqueous environmental chemistry of siloxanes and siloxanols.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5910397

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Uninformative	System appeared to be static (without stirring or attempts to get the test substance into water).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable for this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable for this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Results could also be attributed to solubility in water.
	Metric 12:	Test Substance Purity	Medium	Few details on sampling methods were provided.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Uninformative	Analytical method was unable to distinguish between water solubility and hydrolysis.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was reported, detection limits and extraction efficiency were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable for this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Analytical method was unable to distinguish between water solubility and hydrolysis.
	Metric 18:	QSAR Models	N/A	This metric is not applicable for this type of study.

Overall Quality Determination — Uninformative

Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH): Sealed tube experiments
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	1 mM Tris/Tris-HCl with 5% v/v acetonitrile (MeCN); tubessilanized overnight with 5 % N,O-bis(trimethylsilyl)acetamide in dry THF; 25°C; 2/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	7; 9 days
Sampling Frequency and Test Setup	from figure: 0, 2, 4, 8, 24, 48, 96, 168, 216 hours; Borosilicate glass tubes, flame-sealed after filling to limit volatilization. Headspace was purged with syringes. Tubes aged in the dark.
Concentration	28 µg/L
Analytical Method, Analytical Details, and Statistics	LSC; radio-HPLC; Mobile phase water and acetonitrile. 2.2 mL withdrawn for direct injection tubes rinsed twice.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	64-79%; 8.1x10-3/hour; 86 hours
Results Remarks	19% 14C-D4 remaining after 216 hours. Strong first-order kinetic behavior; base catalysis hydrolysis was generally more efficient than acid-catalysis.

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	Low	The test substance stability, homogeneity, preparation or storage conditions were not reported; and this likely had a substanital impact on the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minor omissions were regarding the test conditions but were not likely have to an impact on the results.

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Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Low	There were inconsistencies in test conditions, that might susbstantially impact the quality of the results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	There were minor discrepancies in the sampling methods that were not likely to impact the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	While the study addressed the confounding factors related to loss through volatilization by conducting subsequent experiments under more controlled conditions, there was still a wide range of recoveries.
	Metric 14:	Health Outcomes 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 and extraction efficiencies were not reported, but recoveries and concentrations were reported. The general reporting and organization of the study made it difficult to connect test conditions with corresponding 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	Medium	The study results were reasonable, but it was clear the study author struggled with controlling volatilization and accounting for substance losses.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	1 mM Tris/Tris-HCl, pH 7, containing 5 %v/v MeCN.; 25°C; 2/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	7; 9 days
Sampling Frequency and Test Setup	from figure: 0, 24, 48, 72, 96, 120, 168, 216 hours; Borosilicate glass tubes, flame-sealed after filling to limit volatilization. Headspace was purged with syringes. Tubes aged in the dark.
Concentration	28 µg/L
Analytical Method, Analytical Details, and Statistics	LSC; radio-HPLC; Mobile phase water and acetonitrile. 2.2 mL withdrawn for direct injection tubes rinsed twice.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	82%; 7.7x10-3/hour; 91 hours
Results Remarks	20% 14C-D4 remaining after 216 hours. Strong first-order kinetic behavior; base catalysis hydrolysis was generally more efficient than acid-catalysis.

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	Low	The test substance stability, homogeneity, preparation or storage conditions were not reported; and this likely had a substanital impact on the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minor omissions were regarding the test conditions but were not likely have to an impact on the results.
	Metric 7:	Testing Consistency	Low	There were inconsistencies in test conditions, that might susbstantially impact the quality of the results.

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Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	There were minor discrepancies in the sampling methods that were not likely to impact the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	While the study addressed the confounding factors related to loss through volatilization by conducting subsequent experiments under more controlled conditions, there was still a wide range of recoveries.
	Metric 14:	Health Outcomes 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 and extraction efficiencies were not reported, but recoveries and concentrations were reported. The general reporting and organization of the study made it difficult to connect test conditions with corresponding 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	Medium	The study results were reasonable, but it was clear the study author struggled with controlling volatilization and accounting for substance losses.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	1 mM Tris/Tris-HCl; 25°C; 2/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	7; 9 days
Sampling Frequency and Test Setup	from figure: 18, 70, 142, 216 hours; Borosilicate glass tubes, flame-sealed after filling to limit volatilization. Headspace was purged with syringes. Tubes aged in the dark.
Concentration	28 µg/L
Analytical Method, Analytical Details, and Statistics	LSC; radio-HPLC; Mobile phase water and acetonitrile. 2.2 mL withdrawn for direct injection tubes rinsed twice.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	82%; 1.0x10-2/hour; 69 hours
Results Remarks	11% 14C-D4 remaining after 216 hours. Strong first-order kinetic behavior; base catalysis hydrolysis was generally more efficient than acid-catalysis.

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	Low	The test substance stability, homogeneity, preparation or storage conditions were not reported; and this likely had a substanital impact on the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minor omissions were regarding the test conditions but were not likely have to an impact on the results.
	Metric 7:	Testing Consistency	Low	There were inconsistencies in test conditions, that might susbstantially impact the quality of the results.

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Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	There were minor discrepancies in the sampling methods that were not likely to impact the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	While the study addressed the confounding factors related to loss through volatilization by conducting subsequent experiments under more controlled conditions, there was still a wide range of recoveries.
	Metric 14:	Health Outcomes 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 and extraction efficiencies were not reported, but recoveries and concentrations were reported. The general reporting and organization of the study made it difficult to connect test conditions with corresponding 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	Medium	The study results were reasonable, but it was clear the study author struggled with controlling volatilization and accounting for substance losses.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	5 mM Acetic acid/ammonium acetate; 25°C; 2/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	5; 4 days
Sampling Frequency and Test Setup	0, 3, 11, 22, 35, 46, 62, 72, 97 hours; Borosilicate glass tubes, flame-sealed after filling to limit volatilization. Headspace was purged with syringes. Tubes aged in the dark.
Concentration	28 µg/L
Analytical Method, Analytical Details, and Statistics	LSC; radio-HPLC; Mobile phase water and acetonitrile. 2.2 mL withdrawn for direct injection tubes rinsed twice.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	80%; 2.1x10-2; 33 hrs
Results Remarks	13% 14C-D4 remaining after 97 hours. Strong first-order kinetic behavior; base catalysis hydrolysis was generally more efficient than acid-catalysis.

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	Low	The test substance stability, homogeneity, preparation or storage conditions were not reported; and this likely had a substanital impact on the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minor omissions were regarding the test conditions but were not likely have to an impact on the results.
	Metric 7:	Testing Consistency	Low	There were inconsistencies in test conditions, that might susbstantially impact the quality of the results.

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Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	There were minor discrepancies in the sampling methods that were not likely to impact the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	While the study addressed the confounding factors related to loss through volatilization by conducting subsequent experiments under more controlled conditions, there was still a wide range of recoveries.
	Metric 14:	Health Outcomes 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 and extraction efficiencies were not reported, but recoveries and concentrations were reported. The general reporting and organization of the study made it difficult to connect test conditions with corresponding 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	Medium	The study results were reasonable, but it was clear the study author struggled with controlling volatilization and accounting for substance losses.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	5 mM Tris/Tris-HCl; 25°C; 2/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	9; 4.25 hrs
Sampling Frequency and Test Setup	0.2, 0.8, 1.3, 1.8, 2.5, 3.0, 3.5, 4.25 hrs; Borosilicate glass tubes, flame-sealed after filling to limit volatilization. Headspace was purged with syringes. Tubes aged in the dark.
Concentration	28 µg/L
Analytical Method, Analytical Details, and Statistics	LSC; radio-HPLC; Mobile phase water and acetonitrile. 2.2 mL withdrawn for direct injection tubes rinsed twice.; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	total 14C recovery was 81-95% (from figure); 1.2/hour; 0.56 hours
Results Remarks	2% 14C-D4 remaining after 4.25 hours. Strong first-order kinetic behavior; base catalysis hydrolysis was generally more efficient than acid-catalysis.

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	Low	The test substance stability, homogeneity, preparation or storage conditions were not reported; and this likely had a substanital impact on the results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Minor omissions were regarding the test conditions but were not likely have to an impact on the results.
	Metric 7:	Testing Consistency	Low	There were inconsistencies in test conditions, that might susbstantially impact the quality of the results.

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Study Citation:	Dow Corning, (2004). Non-regulated study: Method development and preliminary assessment of the hydrolysis kinetics of octamethylcyclotetrasiloxane (D4) according to the principles of OECD 111.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987838

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	There were minor discrepancies in the sampling methods that were not likely to impact the results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	While the study addressed the confounding factors related to loss through volatilization by conducting subsequent experiments under more controlled conditions, there was still a wide range of recoveries.
	Metric 14:	Health Outcomes 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 and extraction efficiencies were not reported, but recoveries and concentrations were reported. The general reporting and organization of the study made it difficult to connect test conditions with corresponding 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	Medium	The study results were reasonable, but it was clear the study author struggled with controlling volatilization and accounting for substance losses.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	formic acid with tetramethylammonium hydroxide; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 9.5°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	4.03; from figure: 96.7 hours
Sampling Frequency and Test Setup	from figure: 0.2, 1.0, 1.4, 1.9, 2.8, 3.7, 4.5, 5.6, 6.6, 7.8, 22.1, 46.3, 96.7 hours; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 74.5-87.7%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	3% as parent at 96.7 hours; 1.46E-01/hour (7 points); 4.76 hours (7 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
Metric 7:	Testing Consistency	High	Test conditions were consistent.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	formic acid with tetramethylammonium hydroxide; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 24.6°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	4.00; not reported
Sampling Frequency and Test Setup	10 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 78.5-86.7%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	1% as parent at end of test.; 3.91E-01/hour (6 points); 1.77 hours (6 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	formic acid with tetramethylammonium hydroxide; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 35.1°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	4.01; not reported
Sampling Frequency and Test Setup	8 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 73.2-83.2%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	12% as parent at end of test.; 7.83E-01/hour (5 points); 0.885 hours (5 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
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			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 9.5°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	6.99; not reported
Sampling Frequency and Test Setup	13 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 68.1-75.0%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	26% as parent at end of test.; 1.28E-03/hour (8 points); 542 hours (8 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
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			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 24.6°C; 24.6°C; 24.8°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	6.99; 7.01; 7.00; not reported
Sampling Frequency and Test Setup	13 sample points; 10 sample points; 12 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 75.1-78.8%; 74.6-80.5%; 66.3-74.3%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	9%; 22%; 16% as parent at end of test.; 7.58E-03/hour (8 points); 4.80E-03/hour (5 points); 1.00E-02/hour (8 points); 91.4 hours (8 points); 144 hours (5 points); 69.3 hours (8 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 35.0°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	7.00; not reported
Sampling Frequency and Test Setup	12 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 62.4-72.2%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	26% as parent at end of test.; 2.78E-02/hour (8 points); 24.9 hours (8 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 9.5°C; 9.5°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	9.02; 9.01; not reported
Sampling Frequency and Test Setup	11 sample points; 9 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 71.6-90.1%; 77.1-86.9%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	5%; 27% as parent at end of test.; 1.09E-01/hour (6 points); 1.24E-01/hour (6 points); 6.37 hours (6 points); 5.61 hours (6 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 24.6°C; 24.3°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	9.01; 9.01; not reported
Sampling Frequency and Test Setup	11 sample points; 9 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 79.3-89.5%; 77.8-87.7%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	3%; 8% as parent at end of test.; 7.68E-01/hour (4 points); 6.84E-01/hour (6 points); 0.902 hour (4 points); 1.01 hour (6 points)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 111 (Hydrolysis as a Function of pH)
Solvent, Reactivity, Storage, Stability	tetrahydrofuran; NR; Refrigerated; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Clear liquid; 98.0±0.21% Notes: 14C-D4; lot # 19302-11-1; expiration 01-13-2006
Buffer, Test Temperature, Number of Replicates	ris(hydroxymethyl)aminomethane with hydrochloric acid; adjusted with tetramethylammonium chloride to ionic strength of 0.020 M; 34.5°C; 34.6°C; single sample/sample time
Positive Controls and Negative Controls	Positive: not reported; Negative: concurrent scintillation vials prepared for recovery and stability assessment.
pH and Duration	9.00; 9.01; not reported
Sampling Frequency and Test Setup	11 sample points; 9 sample points, times not reported; tubes containing buffer and C14-D4 solution; sealed by butane torch; aged in a dark incubator
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	radio-HPLC; LSC; Mobile phase water and Acetonitrile; tubes scored and solution extracted; 1 g used for scintillation; remainder used for direct injection; rinse volume tested by LSC; total 14C recovery was 81.9-88.0%; 85.6-92.2%
Transformation Products	likely dimethylsiloxane-a,w-diol oligomers; dimethylsilanediol
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	25%; 19% as parent at end of test.; 3.66/hour (5 points); 3.18/hour (7 points); 0.19 hour (5 points); 0.218 hour (7 point)
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability was determined.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.

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Study Citation:	Durham, J. (2005). Hydrolysis of octamethylcyclotetrasiloxane (D4).
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987839

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Gatidou, G., Arvaniti, O. S., Stasinakis, A. S., Thomaidis, N. S., Andersen, H. R. (2016). Using mechanisms of hydrolysis and sorption to reduce siloxanes occurrence in biogas of anaerobic sludge digesters. Bioresource Technology 221:205-213.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5375770

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; OECD Guideline 111 (Hydrolysis as a Function of pH): batch experiments
Solvent, Reactivity, Storage, Stability	methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Seelze, Germany); NR; >95%
Buffer, Test Temperature, Number of Replicates	Phosphate buffer solution (enriched with small amount of CaCl2 and aqueous MgSO4); 4.0±1.0°C, 20.0±1.0°C, 35.0±1.0°C, 55.0±1.0°C; triplicate tests were run
Positive Controls and Negative Controls	Positive: not reported; Negative: Procedural and sorption controls were included.
pH and Duration	7.0±0.1; 24 days
Sampling Frequency and Test Setup	Day 3, 7, 12, 20, and 24; Glass vials with avoidance of headspace to minimize volatilization, wrapped in foil to prevent photodegradation.
Concentration	= 100 µg/L
Analytical Method, Analytical Details, and Statistics	GC-MS; LOD calculated as 3x the std dev = 2.2 ng/mL (wastewater) and 0.1 ng/mg (sludge); precautions taken to minimize and quantify background contamination and carry-over; Recovery RSD ≤13%; first order kinetics R-squared values ranged from 0.63 (at 4°C) to 0.99 (at 55°C)
Transformation Products	not reported
Reference Substance and Reference Substance Results	not reported; not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	67%; k (d-1) = 0.05±0.02, 0.17±0.05, 0.43±0.08, and 1.58±0.20 at 4, 20, 35 and 55°C, respectively.; Half-life = 15.2±4.3, 4.1±0.9, 1.6±0.3, and 0.4±0.05 days at 4, 20, 35 and 55°C, respectively.
Results Remarks	Degree of hydrolytic removal efficiency = 70%, 95%, 96% and 97% at 4, 20, 35 and55°C, respectively, after 24 days.

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			
Metric 3:	Study Controls	High	Controls were included.
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 reported.
Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Gatidou, G., Arvaniti, O. S., Stasinakis, A. S., Thomaidis, N. S., Andersen, H. R. (2016). Using mechanisms of hydrolysis and sorption to reduce siloxanes occurrence in biogas of anaerobic sludge digesters. Bioresource Technology 221:205-213.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5375770

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
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.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	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; low analytical recovery reported 67%.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.
Overall Quality Determination			**High**	

Study Citation:	NICNAS, (2020). Cyclic volatile methyl siloxanes: Environment tier II assessment.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6996262

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	NR; 25ºC; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Not Reported
pH and Duration	7; 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; 4.5 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 using established nomenclature.
	Metric 2:	Test Substance Purity	Medium	The substance purity was not reported; however, the omission is unlikely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The use of controls was not detailed in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation, and storage conditions were not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.

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Study Citation:	NICNAS, (2020). Cyclic volatile methyl siloxanes: Environment tier II assessment.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6996262

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Testing conditions across study groups were not reported by the secondary source; however, the omissions are 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	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was not reported in the secondary source; however, 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 by the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability or 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 type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding the analytical method 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	Statistical analysis was not reported in the secondary source; however, the omissions are unlikely to have a substantial impact on the study results.
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:	Shi, Y., Xu, S., Xu, L., Cai, Y. (2015). Distribution, Elimination, and Rearrangement of Cyclic Volatile Methylsiloxanes in Oil-Contaminated Soil of the Shengli Oilfield, China. Environmental Science & Technology 49(19):11527-11535.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836343

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Not Reported; Not Reported
Solvent, Reactivity, Storage, Stability	Pentane; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, MO, USA); NR; >98% Notes: D4
Buffer, Test Temperature, Number of Replicates	Not Reported; 25°C; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Not Reported
pH and Duration	7.1; 384h
Sampling Frequency and Test Setup	0, 1, 2, 4, 6, 18, 48, 92, 192, and 384 h; 3 vials sacrificed for determination of conc in soil; crude oil from the Shengli oilfield was mixed with petroleum ether and uncontaminated soil; soils tested with total petroleum hydrocarbons (TPH)=400, 2,000, 10,000 and 40,000 mg/kg. 20.7% clay; 1.48 g/kg TOC
Concentration	400 µg/L
Analytical Method, Analytical Details, and Statistics	GC/MS; LOQ in soil with TPH=80, 1000, and 10 000=0.5, 0.7, and 1.5 mg/kg, respectively; Not Reported
Transformation Products	Not Reported
Reference Substance and Reference Substance Results	final concentrations were reported with field blank concentrations subtracted; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Recoveries in soil with TPH=80, 1000, and 10 000 mg/kg ranged from 87±1−88±2%, 86±1−88±3%, and 84±2−86±3%, respectively.; kinetics observed: two phases -rapid phase at 0−6 h and slow phase thereafter - regardless of the TPH contents; Rapid phase: 0.67h, 1.56h, 2.65h, 3.15h, and 5.16h at TPH=80, 400, 2000, 10 000, and 40 000 mg/kg, respectively (opened system); 3.34h, 3.44h, 6.17h, 7.86h, and 11.6h at TPH=80, 400, 2000, 10 000, and 40 000 mg/kg, respectively (closed system)
Results Remarks	R-squared ranged from 0.94-0.99; p<0.05. Slow phase half-lives: 3.76h, 8.70h, 20.1h, 43.4h, and 83.4h at TPH=80, 400, 2000, 10 000, and 40 000 mg/kg, respectively (opened system); 26.9h, 32.0h, 91.2h, 100h, and 200h at TPH=80, 400, 2000, 10 000, and 40 000 mg/kg, respectively (closed system); soil half-lives in the rapid phase varied from 3.34 to 11.6 h and 26.9−200 h in the slow phase (at all TPH concentrations 80, 400, 2000, 10 000, and 40 000 mg/kg)

EVALUATION

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

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Study Citation:	Shi, Y., Xu, S., Xu, L., Cai, Y. (2015). Distribution, Elimination, and Rearrangement of Cyclic Volatile Methylsiloxanes in Oil-Contaminated Soil of the Shengli Oilfield, China. Environmental Science & Technology 49(19):11527-11535.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836343

			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	Appropriate test conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples and study groups.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	The inoculum source was reported; viability not analyzed.
	Metric 10:	Sampling Methods	N/A	Not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining inherent biodegradation.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and appropriate, sampling frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables regarding different loss processes not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical and kinetic calculations were not stated.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	Not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; not specified; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Buffer, Test Temperature, Number of Replicates	NR; NR; NR
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	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	NR
Reference Substance and Reference Substance Results	NR; NR
Percent Recovery, Hydrolysis Rate Constant, and Half-life	NR; NR; NR
Results Remarks	In water, D4 exhibits stability with respect to hydrolysis.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Not reported in this source.
Metric 4:	Test Substance Stability	Low	Not reported in this source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Uninformative	Test method was not reported.
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported.
Metric 7:	Testing Consistency	Uninformative	Testing conditions were not reported
Metric 8:	System Type and Design	Low	Equilibrium was not reported.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Hydrolysis
HERO ID:	5889398

		EVALUATION	
Domain	Metric	Rating	Comments
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	Uninformative	There was no assessment methodology.
Metric 12:	Test Substance Purity	Uninformative	There was no sampling method reported.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Low	Confounding variables were not reported.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Low	The analytical method was not reported.
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	Uninformative	Results are qualitative.
Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Uninformative

* Related References: Dow Corning Corp. 1984. TSCA sec 8(d) submission 86940001437. Bioconcentration of octamethylcyclotetrasiloxane in fish, with cover letter dated 4/20/94. Dow Corning Report No. 5721, Series No. I-0030, Project No. TX-84-0130-63, R.B. Annelin, Environmental Sciences Department, Dec. 18, 1984. Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. (HERO ID 5888380)

Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Mixture
Confidentiality, Type, Guideline	None; Experimental; other: Non-guideline hydrolysis study
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; GESilicones, Waterford, NY; Not Reported; Commercial mixture of oligodimethyl-alpha-omega-siloxanediols with a degree of polymerization from 2to 15, the hexamer is the major constituent
Buffer, Test Temperature, Number of Replicates	phosphate buffer concentrations of 0.20, 0.15, and 0.10 M; Not reported; >6
Positive Controls and Negative Controls	Positive: Not reported; Negative: blanks of derivatized extracts of buffer in water run
pH and Duration	3 and 6; 119 hours
Sampling Frequency and Test Setup	0, 1, 6, 24, 47 and 119 hours; Vigorous stirring at 10 mg/mL with deionized water. For acid experiment, 30 mg samples of the mixedoligodimethyl-siloxanediols shaken in Mininert sealed serum bottles along with 10 mL of 0.5 μL/mL aqueoussulfuric acid
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	HPLC, ICP for Silicon and extraction intoethyl acetate followed by triethylsilylation and GC analysis; GC-FID analysis was done on a HewlettPackard 5890; The identities of the derivatized siloxanediols wereconfirmed by GC-MS. When utilizing electron ionization,; Multiple data points reported
Transformation Products	monomer diol, dimer diol, trimer diol
Reference Substance and Reference Substance Results	Not reported; Not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; Not reported; Not reported
Results Remarks	Concentration rises and levels off or decreases suggesting that D4 is produced by cyclization of the tetramerdiol. 5 Si mole % at start of study and approximately 7 Si mole % after 119 hours.

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. The test substance was a mixture with some composition information reported and the other mixture components were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Blanks were run; however, no discussion of darkness controls (or protection from photolysis) were reported.
	Metric 4:	Test Substance Stability	Medium	Some details about the test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to have a substantial impact on study results.

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations 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	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations. Darkness control was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical 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	Statistical methods or kinetic calculations were clearly described and address the dataset(s). Half-lives were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

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

Overall Quality Determination Medium

Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

EXTRACTION

Parameter	**Data**
CASRN and Test Material	1118-15-6; Mixture
Confidentiality, Type, Guideline	None; Experimental; other: Non-guideline hydrolysis study
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; GESilicones, Waterford, NY; Not Reported; Commercial mixture of oligodimethyl-alpha-omega-siloxanediols with a degree of polymerization from 2to 15, the hexamer is the major constituent
Buffer, Test Temperature, Number of Replicates	phosphate buffer concentrations of 0.20, 0.15, and 0.10 M; Not reported; >6
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	3 and 6; 119 hours
Sampling Frequency and Test Setup	0, 1, 6, 24, 47 and 119 hours; Vigorous stirring at 10 mg/mL with deionized water. For acid experiment, 30 mg samples of the mixedoligodimethyl-siloxanediols shaken in Mininert sealed serum bottles along with 10 mL of 0.5 μL/mL aqueoussulfuric acid
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	HPLC, ICP for Silicon and extraction intoethyl acetate followed bytriethylsilylation and GC analysis; GC-FID analysis was done on a HewlettPackard 5890; The identities of the derivatized siloxanediols wereconfirmed by GC-MS. When utilizing electron ionization,; Multiple data points reported, kinetics of hydrolysis at pH 6 In phosphate buffers at various concentrations reported
Transformation Products	monomer diol
Reference Substance and Reference Substance Results	Not reported; Not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; At [PO4] of 0.20 to 0.10 M and slightly lower at 0.050 M the rate constants were 1.41×10-2, 1.45×10-2, 1.44×10-2, and 1.23×10-2 min-1 at average pH at 2.94.kp=5.5×10-4 M-1 min-1 and kH=12 M-1 min-1 at pH 6; Not reported
Results Remarks	Concentration rises and decreases with ~1 Si mole % at start of study and after 119 hours but 9 Si mole % at 24 hours

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. The test substance was a mixture with some composition information reported and the other mixture components were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Blanks were run; however, no discussion of darkness controls (or protection from photolysis) were reported.
	Metric 4:	Test Substance Stability	Medium	Some details about the test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations 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	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations. Darkness control was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical 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	Statistical methods or kinetic calculations were clearly described and address the dataset(s). Half-lives were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

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

Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

EXTRACTION

Parameter	**Data**
CASRN and Test Material	1066-42-8; Mixture
Confidentiality, Type, Guideline	None; Experimental; other: Non-guideline hydrolysis study
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; GESilicones, Waterford, NY; Not Reported; Commercial mixture of oligodimethyl-alpha-omega-siloxanediols with a degree of polymerization from 2to 15, the hexamer is the major constituent
Buffer, Test Temperature, Number of Replicates	phosphate buffer concentrations of 0.20, 0.15, and 0.10 M; Not reported; >6
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	3 and 6; 119 hours
Sampling Frequency and Test Setup	0, 1, 6, 24, 47 and 119 hours; Vigorous stirring at 10 mg/mL with deionized water. For acid experiment, 30 mg samples of the mixedoligodimethyl-siloxanediols shaken in Mininert sealed serum bottles along with 10 mL of 0.5 μL/mL aqueoussulfuric acid
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	HPLC, ICP for Silicon and extraction intoethyl acetate followed bytriethylsilylation and GC analysis; GC-FID analysis was done on a HewlettPackard 5890; The identities of the derivatized siloxanediols wereconfirmed by GC-MS. When utilizing electron ionization,; Multiple data points reported
Transformation Products	None
Reference Substance and Reference Substance Results	Not reported; Not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; Not reported; Not reported
Results Remarks	Concentration increased over time with 0 Si mole % at start of study and approximately 23 Si mole % after 119 hours.

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. The test substance was a mixture with some composition information reported and the other mixture components were not likely to have a substantial impact on the study results.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Blanks were run; however, no discussion of darkness controls (or protection from photolysis) were reported.
Metric 4:	Test Substance Stability	Medium	Some details about the test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations 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	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations. Darkness control was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical 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	Statistical methods or kinetic calculations were clearly described and address the dataset(s). Half-lives were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

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

Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

EXTRACTION

Parameter	Data
CASRN and Test Material	3663-50-1; Mixture
Confidentiality, Type, Guideline	None; Experimental; other: Non-guideline hydrolysis study
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; GESilicones, Waterford, NY; Not Reported; Commercial mixture of oligodimethyl-alpha-omega-siloxanediols with a degree of polymerization from 2to 15, the hexamer is the major constituent
Buffer, Test Temperature, Number of Replicates	phosphate buffer concentrations of 0.20, 0.15, and 0.10 M; Not reported; >6
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	3 and 6; 119 hours
Sampling Frequency and Test Setup	0, 1, 6, 24, 47 and 119 hours; Vigorous stirring at 10 mg/mL with deionized water. For acid experiment, 30 mg samples of the mixedoligodimethyl-siloxanediols shaken in Mininert sealed serum bottles along with 10 mL of 0.5 μL/mL aqueoussulfuric acid
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	HPLC, ICP for Silicon and extraction intoethyl acetate followed by triethylsilylation and GC analysis; GC-FID analysis was done on a HewlettPackard 5890; The identities of the derivatized siloxanediols wereconfirmed by GC-MS. When utilizing electron ionization,; Multiple data points reported
Transformation Products	monomer diol, dimer diol
Reference Substance and Reference Substance Results	Not reported; Not reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not reported; Not reported; Not reported
Results Remarks	Concentration decreased over time with ~12 Si mole % at start of study and approximately 0 Si mole % after 119 hours.

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. The test substance was a mixture with some composition information reported and the other mixture components were not likely to have a substantial impact on the study results.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Blanks were run; however, no discussion of darkness controls (or protection from photolysis) were reported.
	Metric 4:	Test Substance Stability	Medium	Some details about the test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations 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	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations. Darkness control was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical 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	Statistical methods or kinetic calculations were clearly described and address the dataset(s). Half-lives were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Spivack, J., Dorn, S. B. (1994). Hydrolysis of oligodimethylsiloxane-alpha, omega-diols and the position of hydrolytic equilibrium. Environmental Science & Technology 28(13):2345-2352.
OECD Harmonized Template:	Hydrolysis
HERO ID:	5885543

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

Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836352

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	none; experimental; other: Batch Hydrolysis tests at pH 7.8, 8.5, and 9.2
Solvent, Reactivity, Storage, Stability	acetone; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Sigma-Aldrich, St. Louis, MO, USA; Not Reported; not specified
Buffer, Test Temperature, Number of Replicates	pH 7.8 - hydrochloric acid/tris(hydroxymethyl)- aminomethane buffer, pH 8.5 hydrochloric acid/tris-(hydroxymethyl)aminomethane buffer, pH 9.2 glycine/sodium hydroxide buffer; 22°C; not specified
Positive Controls and Negative Controls	Positive: not specified; Negative: not specified
pH and Duration	7.8, 8.5, and 9.2; 48 hours
Sampling Frequency and Test Setup	Samples collected in triplicate at 0, 1, 3, 10, 24, and 48 hours; sealed glass vials without headspace in a light-proof shaker operating at 100 rpm
Concentration	500 µg/L
Analytical Method, Analytical Details, and Statistics	GC-MS; LOQ = 1.6 µg/L; R2 = 0.9995; $p<0.05$
Transformation Products	not specified
Reference Substance and Reference Substance Results	not specified; not specified
Percent Recovery, Hydrolysis Rate Constant, and Half-life	not specified; not reported; 15.6 hours at pH 7.8, 6.32 hours at pH 8.5, and 2.33 hours at pH 9.2
Results Remarks	first-order kinetics

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	Medium	Concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	High	The test substance preparations were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	The system type and design were appropriate.

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Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836352

			EVALUATION	
Domain		Metric	Rating	Comments
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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Low	Details were omitted regarding sampling methods.
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	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Kinetic calculations were not described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836341

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Biodegradation of D4 in soil collected from sites near an oil-wastewater treatment station.
Solvent, Reactivity, Storage, Stability	Pentane; NR; NR; NR
Radiolabel, Source, State, Purity	13-C D4 obtained from Moravek Biochemicals (Brea, CA) and Cambridge Isotope Laboratories (Andover, MA); Sigma-Aldrich (St. Louis, MO); NR; >98%
Buffer, Test Temperature, Number of Replicates	Not Reported; 25°C; Not Reported
Positive Controls and Negative Controls	Positive: Not Reported; Negative: Sterilized controls were used to determine abiotic losses.
pH and Duration	7.4; Soil samples were collected annually from 2008-2017.
Sampling Frequency and Test Setup	Days 0, 0.5, 2, 4, 8, and 20.; 2g soil was mixed with 1mL of 200µg/L standard solution, flushed with nitrogen to remove pentane, and capped. Triplicate uncapped vials were used to determine volatilization losses.
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	GC-MS with selective ion monitoring; Agilent 7890A GC and 5975C mass spectrometer. Recovery in soil: 88-95%.; Volatilization was the dominant removal process in soil under all TOC levels, and no biotic losses were observed. Volatilization was the dominant removal process in soil under all TOC levels, and no biotic losses were observed.
Transformation Products	Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	88-95%; Not Reported; Half-life of D4 in capped vials at TOC of 10, 20, 50, 100, and 200 mg/g: 5.64, 7.44, 8.76, 15.1, and 21.1 days.
Results Remarks	Sterilized controls showed that hydrolysis was the dominant role in D4 degradation in soil. Volatilization half-lives of 2.31, 3.70, 5.09, 7.04, and 10.9 days were calculated at TOCs of 10, 20, 50, 100, and 200 mg/g, respectively.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate sterilized and uncapped controls were used to determine hydrolysis and volatilization losses.
	Metric 4:	Test Substance Stability	High	The test substance storage and 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	The testing conditions were reported and appropriate.

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Study Citation:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836341

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	There were no changes to 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 type were not reported; however, the omission is unlikely to have an impact on the study results.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final results; however, the omission is unlikely to have a substantial impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and abiotic losses were accounted for.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	The kinetic calculations were not described; 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:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836341

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Hydrolysis of D4 in sterilized soil with total organic carbon levels ranging from 10-200 mg/g.
Solvent, Reactivity, Storage, Stability	Pentane; NR; NR; NR
Radiolabel, Source, State, Purity	13-C D4 obtained from Moravek Biochemicals (Brea, CA) and Cambridge Isotope Laboratories (Andover, MA); Sigma-Aldrich (St. Louis, MO); NR; >98%
Buffer, Test Temperature, Number of Replicates	None; 25°C; 3 at each sampling period.
Positive Controls and Negative Controls	Positive: Not reported; Negative: Not reported
pH and Duration	7.4; 20 days
Sampling Frequency and Test Setup	0, 0.5, 2, 4, 8, and 20 days.; D4 was added to sterilized soil in (16.0-16.5% humidity) at 200µg/L.
Concentration	200 µg/L
Analytical Method, Analytical Details, and Statistics	GC-MS with selective ion monitoring; Agilent 7890A GC and 5975C MS. Recovery in aqueous samples: 87-96%.; 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; In samples with TOC of 10, 20, 50, 100, and 200 mg/g, half lives were 5.64, 7.44, 8.76, 15.1, and 21.1 days, respectively.
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate procedural blanks were used.
	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	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have substantial impact on the study results.
	Metric 7:	Testing Consistency	High	The testing conditions appeared to be 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				

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Study Citation:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836341

		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 the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the final results; however, the omission is unlikely to impact the outcome assessment. No confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Mass balance was not reported but the analytical method was appropriate and sufficient evidence was provided to show that the observed elimination was due to hydrolysis.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	The kinetic calculations were only briefly described; however, the omissions are unlikely to impact the outcome assessment.
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:	Xu, S. (1999). Fate of cyclic methylsiloxanes in soils. 1. The degradation pathway. Environmental Science & Technology 33(4):603-608.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6834128

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99% Notes: radioactivity=2.2X10+5Bq/mL
Buffer, Test Temperature, Number of Replicates	not reported; room temperature (ca. 22°C); not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Test soil: Wahiawa Series from Kunia area, Oahu, HI; 30% relative humidity
Concentration	ca. 40 - ca. 200 other
Analytical Method, Analytical Details, and Statistics	HPLC/GPC/Flow Scintillation Analyzer; RP-HPLC; GC/MS; Samples were extracted in various tetrahydrofuran solutions then analyzed using gas chromatography/mass spectroscopy (GC/MS), gel permeationchromatography (GPC), and reverse-phase high performance liquid chromatography (RP-HPLC).; Not Reported
Transformation Products	mono-, di-, tri-, tetra-dimethylsilanediol, D3 over 7 days
Reference Substance and Reference Substance Results	Not applicable; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; Not reported; not reported
Results Remarks	Oligomeric diols are unstable in soil and the ultimate degradation product for D4 is dimethylsilanediol.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	A sterilized control should have been used to rule out potential degradation. Also, analytical QC was not discussed outside of extraction recovery.
	Metric 4:	Test Substance Stability	Medium	Some storage conditions and stability were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance, nominal estimates of media concentrations were provided, but, the levels were not measured, however, these deviations or omissions were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Low	Missing critical test conditions, including how alternatives processes such as volatilization and hydrolysis were controlled.

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Study Citation:	Xu, S. (1999). Fate of cyclic methylsiloxanes in soils. 1. The degradation pathway. Environmental Science & Technology 33(4):603-608.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6834128

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	Medium	Some of the sampling methods were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	It is unclear how volatilization and biodegradation was accounted for.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Alternative processes such as hydrolysis and volatilization were accounted for or controlled.
	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:	Xu, S. (2007). Estimation of degradation rates of cVMS in soils.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987887

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Calculation; other: estimation of hydrolysis rates
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	Not applicable; Not applicable; Not applicable
Positive Controls and Negative Controls	Positive: Not applicable; Negative: Not applicable
pH and Duration	Not applicable; Not applicable
Sampling Frequency and Test Setup	Not applicable; Extrapolation is based on the measured hydrolysis rates of octamethylcyclotetrasiloxane in Londo and Wahiawa soils
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Measured hydrolysis rates of D4, D5 and D6 in Wahiawa soil (tropical) at 32 and 92% relative humidity were used for extrapolation.; k=-23.66 log Hr + 7.83; where Hr=relative humidity represented as % and k is the hydrolysis rate in day-1.; Not applicable
Transformation Products	Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not applicable; 14.95/hour at 50% relative humidity; 11.49/hour at 70% relative humidity; 8.91/hour at 90% relative humidity; 0.046 days at 50% relative humidity; 0.06 days at 70% relative humidity; 0.078 days at 90% relative humidity
Results Remarks	Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms			

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Study Citation:	Xu, S. (2007). Estimation of degradation rates of cVMS in soils.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987887

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed 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	Medium	Not all data was presented.
	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:	Xu, S. (2007). Estimation of degradation rates of cVMS in soils.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987887

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Calculation; other: estimation of hydrolysis rates
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	Not applicable; Not applicable; Not applicable
Positive Controls and Negative Controls	Positive: Not applicable; Negative: Not applicable
pH and Duration	Not applicable; Not applicable
Sampling Frequency and Test Setup	Not applicable; Extrapolation is based on the measured hydrolysis rates of octamethylcyclotetrasiloxane in Londo and Wahiawa soils;
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	Measured hydrolysis rates of D4, D5 and D6 in Londo soil (temperate) at 32 and 92% relative humidity were used for extrapolation.; k=-0.001526 log Hr + 0.1245; where Hr=relative humidity represented as % and k is the hydrolysis rate in day-1.; Not applicable
Transformation Products	Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable
Percent Recovery, Hydrolysis Rate Constant, and Half-life	Not applicable; 0.17/hour at 50% relative humidity; 0.148/hour at 70% relative humidity; 0.132/hour at 90% relative humidity; 4.1 days at 50% relative humidity; 4.7 days at 70% relative humidity; 5.27 days at 90% relative humidity
Results Remarks	Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.

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Study Citation:	Xu, S. (2007). Estimation of degradation rates of cVMS in soils.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6987887

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 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	Medium	Not all data was presented.
	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:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Wahiawa soil (pH 4.9; OM 2.2%; sand 21.2%; silt 24.0%; clay 54.8%); 32% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; 19.54; 0.04 days
Results Remarks	Degradation in Wahiawa soil at 32% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 the study type.

Overall Quality Determination High

* Related References: ECHA rating: 2

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Wahiawa soil (pH 4.9; OM 2.2%; sand 21.2%; silt 24.0%; clay 54.8%); 92% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; 8.69; 0.08 days
Results Remarks	Degradation in Wahiawa soil at 92% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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

* Related References: ECHA rating: 2

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Wahiawa soil (pH 4.9; OM 2.2%; sand 21.2%; silt 24.0%; clay 54.8%); 100% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; 0.77; 0.89 days
Results Remarks	Degradation in Wahiawa soil at 100% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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

* Related References: ECHA rating: 2

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Londo soil (pH 7.6; OM 2.4%; sand 50%; silt 28%; clay 22%); 32% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; 0.20; 3.54 days
Results Remarks	Degradation in Londo soil at 32% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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

* Related References: ECHA rating: 2

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Londo soil (pH 7.6; OM 2.4%; sand 50%; silt 28%; clay 22%); 92% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; 0.13; 5.25 days
Results Remarks	Degradation in Londo soil at 92% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

Domain	Metric	Metric	EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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

* Related References: ECHA rating: 2

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: hydrolysis in soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Buffer, Test Temperature, Number of Replicates	not reported; 22±2°C; not reported
Positive Controls and Negative Controls	Positive: not reported; Negative: not reported
pH and Duration	not reported; 7 days
Sampling Frequency and Test Setup	not reported; Closed Tubes; Londo soil (pH 7.6; OM 2.4%; sand 50%; silt 28%; clay 22%); 100% relative humidity
Concentration	Not Reported
Analytical Method, Analytical Details, and Statistics	RP-HPLC with flow scintillation analyzer; Analytical details referenced.; not reported
Transformation Products	ultimate degradation product dimethylsilanediol.
Reference Substance and Reference Substance Results	not reported; Not Reported
Percent Recovery, Hydrolysis Rate Constant, and Half-life	94.5-101.2%; ca. 0.001; Unable to calculate from low degradation rate
Results Remarks	Degradation in Londo soil at 100% relative humidity.

EVALUATION

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

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Hydrolysis
HERO ID:	6836181

Domain	Metric		EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and percent recovery were reported and analytical methods used were suitable for detection and quantification of the target chemical and sufficient evidence was presented to confirm that parent compound disappearance was not likely due to some other process.
	Metric 16:	Statistical Methods and Kinetic Calculations	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

* Related References: ECHA rating: 2

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Hydrolysis
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	none; experimental; other: not specified
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Buffer, Test Temperature, Number of Replicates	NR; 25C; NR
Positive Controls and Negative Controls	Positive: NR; Negative: NR
pH and Duration	7; NR
Sampling Frequency and Test Setup	NR; NR
Concentration	NR
Analytical Method, Analytical Details, and Statistics	NR; NR; NR
Transformation Products	NR
Reference Substance and Reference Substance Results	NR; NR
Percent Recovery, Hydrolysis Rate Constant, and Half-life	NR; NR; 3-4 days
Results Remarks	hydrolysis half-life in water; increase or decrease in pH accelerate this reaction

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	Details regarding this metric were not included in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Details regarding this metric were not included in this review.
	Metric 4:	Test Substance Stability	Low	Details regarding this metric were not included in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Details regarding this metric were not included in this review.
	Metric 6:	Testing Conditions	Medium	Limited details regarding this metric were reported in this review.
	Metric 7:	Testing Consistency	Low	Details regarding this metric were not included in this review.
	Metric 8:	System Type and Design	Low	Details regarding this metric were not included in this review.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Hydrolysis
HERO ID:	2535051

Domain	Metric		EVALUATION Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Details regarding this metric were not included in this review.
	Metric 12:	Test Substance Purity	Low	Details regarding this metric were not included in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Details regarding this metric were not included in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Details regarding this metric were not included in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Details regarding this metric were not included in this review.
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: Source cited: Kozerski, G. E.; Durham, J. A. Kinetics and mechanism of the abiotic hydrolysis reactions of permethylated cyclosiloxanes in aqueous solution. In SETAC Northern America 27th Annual Meeting, Montreal, Quebec, Canada, November 5−9, 2006.

Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR
Solvent, Reactivity, Storage, Stability	Distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; synthesized for study from dimethyldimethoxysilane; NR; NR Notes: recrystallized from UV grade acetonitrile or acetone.
Duration and Test Temperature	8 - 10 days; NR
Light Source, Intensity, and additional light details	GE-275 RS Sunlamps; estimated to be approximately 5x that of direct natural sunlight; NR
Source Wavelength Lower and Upper	290; 365
Test Details and Control	Mediators: Distilled H20, Tittabawassee River (approx. 1 ppm NOx), Lake Huron (approx. 1 ppm NOx), and Gulf of Mexico (approx. 0.03 ppm NOx); Control contained 100 ug/mL HNO3, no demethylation detected
Initial Concentration and Reference Compound	50 - 100 ppm; NR
Substance Wavelength Lower and Upper	NR; 365 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Rate Constant Lower and Upper	NR; NR
Method Details Results and Products Details Results	NR; Dimethylsilanediol exhibits no UV absorption in the region of 220-400 nm
Parameter Value and Parameter Results	NR; NR
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	NR; NR; NR; NR
Results Remarks, Sample time Results, Results Details	NR; NR; Demethylation (ug/mL): 0.30, 14.1, 12.7, and 0.52 in Distilled H2O, Tittabawassee River, Lake Huron, and Gulf of Mexico respectively.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Test substance purity was not reported; however, source mentions that product purity was verified by melting point determination.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Study controls were included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				

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Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method information was reported; however, omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The study meets the qualifications for a high rating in this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric does not apply 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	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR
Solvent, Reactivity, Storage, Stability	Distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; synthesized for study from dimethyldimethoxysilane; NR; NR Notes: recrystallized from UV grade acetonitrile or acetone.
Duration and Test Temperature	2 days; NR
Light Source, Intensity, and additional light details	GE-275 RS Sunlamps; estimated to be approximately 5x that of direct natural sunlight.; NR
Source Wavelength Lower and Upper	290; 365
Test Details and Control	KNO3 mediator; Control contained 100 ug/mL HNO3, no demethylation detected.
Initial Concentration and Reference Compound	50 - 100 ppm; NR
Substance Wavelength Lower and Upper	NR; 365 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Rate Constant Lower and Upper	NR; NR
Method Details Results and Products Details Results	NR; Dimethylsilanediol exhibits no UV absorption in the region of 220-400 nm
Parameter Value and Parameter Results	NR; NR
Reference Compound, Reference	NR; NR; NR; NR
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	NR; NR; Demethylation (ug/mL): 32.0, 15.0, 0.47 when KNO3 was 10,000, 100, and 1 ug/mL respectively.

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	Test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	Test substance purity was not reported; however, source mentions that product purity was verified by melting point determination.
Domain 2: Test Design			
	Metric 3: Study Controls	High	Study controls were included.
	Metric 4: Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable.
	Metric 6: Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7: Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method information was reported; however, omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The study meets the qualifications for a high rating in this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric does not apply 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	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR
Solvent, Reactivity, Storage, Stability	Distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; synthesized for study from dimethyldimethoxysilane; NR; NR Notes: recrystallized from UV grade acetonitrile or acetone.
Duration and Test Temperature	8 days; NR
Light Source, Intensity, and additional light details	GE-275 RS Sunlamps; estimated to be approximately 5x that of direct natural sunlight.; NR
Source Wavelength Lower and Upper	290; 365
Test Details and Control	NaNO2, Na2SO4, and Na3PO4 mediators; Control contained 100 ug/mL HNO3, no demethylation detected.
Initial Concentration and Reference Compound	50 - 100 ppm; NR
Substance Wavelength Lower and Upper	NR; 365 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Rate Constant Lower and Upper	NR; NR
Method Details Results and Products Details Results	NR; Dimethylsilanediol exhibits no UV absorption in the region of 220-400 nm
Parameter Value and Parameter Results	NR; NR
Reference Compound, Reference	NR; NR; NR; NR
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	NR; NR; Demethylation (ug/mL): 24.1, 0.58, 0.47 when NaNO2 was 10 ug/mL, Na2SO4 was 10 ug/mL, and when Na3PO4 was 10 ug/mL respectively.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Test substance purity was not reported; however, source mentions that product purity was verified by melting point determination.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Study controls were included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.

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Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method information was reported; however, omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The study meets the qualifications for a high rating in this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric does not apply 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	This metric does not apply to this study type.

Overall Quality Determination High

Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR
Solvent, Reactivity, Storage, Stability	Distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; synthesized for study from dimethyldimethoxysilane; NR; NR Notes: recrystallized from UV grade acetonitrile or acetone.
Duration and Test Temperature	5 days; NR
Light Source, Intensity, and additional light details	GE-275 RS Sunlamps; estimated to be approximately 5x that of direct natural sunlight.; NR
Source Wavelength Lower and Upper	290; 365
Test Details and Control	KI mediator; Control contained 100 ug/mL HNO3, no demethylation detected.
Initial Concentration and Reference Compound	50 - 100 ppm; NR
Substance Wavelength Lower and Upper	NR; 365 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Rate Constant Lower and Upper	NR; NR
Method Details Results and Products Details Results	NR; Dimethylsilanediol exhibits no UV absorption in the region of 220-400 nm
Parameter Value and Parameter Results	NR; NR
Reference Compound, Reference	NR; NR; NR; NR
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	NR; NR; Demethylation (ug/mL): 0.03 when KI was 100 ug/mL

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Test substance purity was not reported; however, source mentions that product purity was verified by melting point determination.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Study controls were included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method information was reported; however, omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The study meets the qualifications for a high rating in this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric does not apply 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	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): NR
Solvent, Reactivity, Storage, Stability	Distilled water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; synthesized for study from dimethyldimethoxysilane; NR; NR Notes: recrystallized from UV grade acetonitrile or acetone.
Duration and Test Temperature	7 days; NR
Light Source, Intensity, and additional light details	GE-275 RS Sunlamps; estimated to be approximately 5x that of direct natural sunlight.; NR
Source Wavelength Lower and Upper	290; 365
Test Details and Control	HNO3 mediator; Control contained 100 ug/mL HNO3, no demethylation detected.
Initial Concentration and Reference Compound	50 - 100 ppm; NR
Substance Wavelength Lower and Upper	NR; 365 nm
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	NR; NR; NR
Indirect Rate Constant Lower and Upper	NR; NR
Method Details Results and Products Details Results	NR; Dimethylsilanediol exhibits no UV absorption in the region of 220-400 nm
Parameter Value and Parameter Results	NR; NR
Reference Compound, Reference	NR; NR; NR; NR
Substance Results, Percent Degradation Results and Standard Deviation Results	
Results Remarks, Sample time Results, Results Details	NR; NR; Demethylation (ug/mL): 34.3, 3.73, 0.50 when HNO3 was 100, 1, and 0.01 ug/mL respectively.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Test substance purity was not reported; however, source mentions that product purity was verified by melting point determination.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Study controls were included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Buch, R. R., Lane, T. H., Annelin, R. B., Frye, C. L. (1984). Photolytic oxidative demethylation of aqueous dimethylsiloxanols. Environmental Toxicology and Chemistry 3(2):215-222.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	7289185

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some sampling method information was reported; however, omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The study meets the qualifications for a high rating in this metric.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric does not apply 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	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Dow Corning, (1980). Aqueous environmental chemistry of siloxanes and siloxanols.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5910397

EXTRACTION

Parameter	Data
CASRN and Test Material	1066-42-8; Dimethylsilanediol
Confidentiality, Type, Guideline	None; Experimental; EPA OTS 796.3700 (Direct Photolysis Rate in Water by Sunlight): Aqueous photolysis
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Available laboratory sample; NR; NR Notes: Used after distillation and analysis
Duration and Test Temperature	Not reported; Not reported
Light Source, Intensity, and additional light details	simulated sunlight; maximum radiant energy at 365 nm; GE 275RS sunlamp
Source Wavelength Lower and Upper	295 nm (filtered through Pyrex sheets placed in from of lamps); Not reported
Test Details and Control	D4 layer on top of water layer with 10 ppm nitrate added as sodium nitrate to water layer; photolyzed in flexible wall Teflon bottles fitted with rubber septum.; Not reported
Initial Concentration and Reference Compound	Not reported Not reported; Not reported
Substance Wavelength Lower and Upper	Not reported; Not reported
Direct Quantum Yield Results, Direct Half Life by Loss Lower and Upper	Not reported; Not reported; Not reported
Indirect Rate Constant Lower and Upper	Not reported; Not reported
Method Details Results and Products Details Results	Analyzed via GLC using a modified version of the Aqueous Silanol Functionality Test (ASFT); Recovered most of original D4 as 5 parts dimethylsilanediol and 1 part methylsilanetriol
Parameter Value and Parameter Results	Not Reported; reaction with nitrate ion
Reference Compound, Reference Substance Results, Percent Degradation Results and Standard Deviation Results	Not reported; Not reported; quantitative results were not reported; Not reported
Results Remarks, Sample time Results, Results Details	Photolysis was of D4 layer on top of water layer containing 10 ppm nitrate ion. The D4 layer shrank and eventually formed a gel on the surface of the water.; 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 reported vaguely as laboratory samples which were distilled and analyzed.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Dark samples were not reported.
Metric 4:	Test Substance Stability	Medium	Analysis showed minimal hydrolysis at pH 4, 7, and 10, and unbuffered water.
Domain 3: Test Conditions			

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Study Citation:	Dow Corning, (1980). Aqueous environmental chemistry of siloxanes and siloxanols.
OECD Harmonized Template:	Photolysis in Water
HERO ID:	5910397

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Uninformative	The test method was unsuitable as the test substance was not dissolved in water but rather was a layer on top of the water.
	Metric 6:	Testing Conditions	Low	Limited test condition details were reported.
	Metric 7:	Testing Consistency	Uninformative	Results were reported as observations only; unclear if multiple samples were run.
	Metric 8:	System Type and Design	Uninformative	System not designed for compounds with low water solubility.
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	Uninformative	Results were reported qualitatively.
	Metric 12:	Test Substance Purity	Medium	Limited details on the sampling methods were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Stability in water was concurrently reported but volatilization was not 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	Medium	The analytical method was reported, detection limits and extraction efficiency were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results were reasonable based on the available detail.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Medium

Study Citation:	Bayer AG, (1995). Microbial degradation of octamethylcyclotetrasiloxane, with cover letter dated 07/14/95.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5888892

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, EndPoint, Type, Guideline	None; Not Reported; Experimental; other: Biodegradation in Industrial Sewage Sludge
Solvent, Reactivity, Storage, Stability	Methanol; NR; Stored in sealed ampoules at -25°C; NR
Radiolabel, Source, State, Purity	[Methly-14C]Octamethylcyclotetrasiloxane; 632.7 MBq/mmol specific activity; SIGMA Chem. Comp. (radio labelled); Janssen Chemical, Belgium (unlabeled); NR; >86.9% (radiochemical purity, radio-HPLC)
Blank and Control	Autoclaved cells; Not reported
Oxygen and Inoculum	not specified; activated sludge (adaptation not specified): Sewage sludge directly from chemical industry waste water treatment plants, Leverkusen and Dormagen
Duration, Parameter, System, and Sampling Frequency	1 week; test mat.: 500 mL round glass bottle, screw bap with three cannulas with LUER-lock junctions, two of which closed with septa; D4 adsorption unit (XAD resin) and CO2 adsorption units (soda lime) connected to system; Not reported
pH Adjusted and pH	Not Reported; Not reported
Concentration	10 ppm
Composition and Test Temperature	Mineral phosphate medium amended with trace elements and vitamins; Ambient
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not Reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Beckman LS 3801 liquid scintillation counter, GC-MS; 14-CO2; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	0.4%; Not reported; 1 week; Not reported
Results Remarks and Results Details	14-CO2 for both Leverkusen and Dormagen inoculums.; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; 89.3% (Leverkusen); 87.8% (Dormagen)

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	Autoclaved controls were included but results were not reported.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage were reported.
Domain 3: Test Conditions			

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Study Citation:	Bayer AG, (1995). Microbial degradation of octamethylcyclotetrasiloxane, with cover letter dated 07/14/95.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5888892

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Appropriate testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining biodegradation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were reported but results at the end of the study only were 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	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate; limits of detection and extraction efficiencies were not reported. Raw data was included.
	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 reasonable based on the method but were not compared to a reference substance and one data point at a non-standard test termination time point (7 d vs 28 d) was used.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	6994688

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: aerobic degradation in sediment
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-D4; NR; NR; NR
Blank and Control	sterile controls; not reported
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: uncontaminated pond
Duration, Parameter, System, and Sampling Frequency	56 days; radiochem: Not Reported; not reported
pH Adjusted and pH	Not Reported; Not Reported
Concentration	~30 ug/L
Composition and Test Temperature	Not Reported; not reported
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; not reported; Not Reported
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not reported; Not Reported; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	no evidence of biodegradation; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	D4 was lost from the system through volatilization.; Not Reported
Results Mean Total Recovery and Results per Recovery	mass balance 47.3-101.6; many values <80%.; 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	Some concurrent control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	6994688

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Nominal estimates of media concentrations were provided, but the levels were not measured or suitable to the study type or outcome(s) of interest.
	Metric 6:	Testing Conditions	Low	Inappropriate test conditions for the study method and the deviations were likely to have a substantial impact on the 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	This metric is not applicable to this type of study.
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	This metric is not applicable to this type of study.
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	Low	Details regarding sampling methods of the outcome(s) were not fully reported, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	There is concern that variability or uncertainty was likely to have a substantial impact on the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
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	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination **Low**

* Related References: Cited: HERO ID: 6834162; Kent D, Fackler P, Hartley D, and Hobson J, 1996, Interpretation of data from nonstandard studies: The fate of octamethylcyclotetrasiloxane in a sediment/water microcosm system. Environmental Toxicology and Water Quality, 11, 145–149.

Study Citation:	Dow Corning, (1988). Preliminary check of suitability of shake flask die away biodegradation test for octamethylcyclotetrasiloxane with cover letters dated 112988 and 120288.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5904589

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Shake-flask die-away biodegradation test
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; provided by S. Varaprath; NR; 97.8% by GC
Blank and Control	Not reported; Not reported
Oxygen and Inoculum	aerobic; not specified: Not reported
Duration, Parameter, System, and Sampling Frequency	24 hours; test mat.: 2L volumetric flask; 0 and 24 hr
pH Adjusted and pH	Not Reported; Not reported
Concentration	$\geq$ 163 - $\leq$ 199 µg/L
Composition and Test Temperature	carbon filtered municipal water; room temperature
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	Not reported; Not reported; Not reported; Test used to assess acceptability of the method
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Purge and trap/GC-MS; loss of test material; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	>70%; Not reported; Not reported; Not reported
Results Remarks and Results Details	Less than 30% of the test material was present after 24 hrs. Shake-flask die-away biodegradation test is not appropriate for test material.; 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.
Metric 2:	Test Substance Purity	High	Purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	No controls were reported.
Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.

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Study Citation:	Dow Corning, (1988). Preliminary check of suitability of shake flask die away biodegradation test for octamethylcyclotetrasiloxane with cover letters dated 112988 and 120288.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5904589

Domain	Metric		EVALUATION Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The method was deemed unsuitable for the test substance based on its loss of greater than 50% over the initial 24 hr period.
	Metric 6:	Testing Conditions	Low	Limited details regarding this metric.
	Metric 7:	Testing Consistency	Medium	Limited details regarding this metric.
	Metric 8:	System Type and Design	Uninformative	Based on the results, the system type and design was deemed as not appropriate for this compound.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Low	Limited details regarding this metric.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed 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	Low	Sources of variability and uncertainty in the measurements were not addressed or reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical details were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this study.

Overall Quality Determination — Uninformative

Study Citation:	Dow Corning, (2014). Non-regulated study: DMSD environmental modeling using SIMPLETREAT and QWASI.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	9644522

EXTRACTION

Parameter	**Data**
CASRN and Test Material	1066-42-8; Not Reported
Confidentiality, EndPoint, Type, Guideline	none; other; experimental; other: 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
Blank and Control	not specified; not specified
Oxygen and Inoculum	not specified; other:: liquid culture
Duration, Parameter, System, and Sampling Frequency	not specified; not specified: not specified; not specified
pH Adjusted and pH	not specified; not specified
Concentration	not specified -
Composition and Test Temperature	not specified; not specified
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not specified; not specified; not specified; not specified
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	not specified; half-life; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	438 days; Not Reported; Not Reported; Not Reported
Results Remarks and Results Details	Not Reported; rate: 0.7-0.9% degradation per week
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	Details were not reported in this source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details were not reported in this source.
Metric 4:	Test Substance Stability	Low	Details were not reported in this source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	Details were not reported in this source.

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Study Citation:	Dow Corning, (2014). Non-regulated study: DMSD environmental modeling using SIMPLETREAT and QWASI.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	9644522

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

Overall Quality Determination Low

* Related References: Primary source cited: (Sabourin, et al., 1996) HERO ID 3118741; not in distiller at time of extraction.

Study Citation:	Gledhill, W. E. (2005). Determining the biodegradability of octamethylcyclotetrasiloxane based on the draft OECD 310 sealed vessel CO2 evolution biodegradation test.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7004961

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane (D4)
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; OECD Guideline 310 (Ready Biodegradability - CO2 in Sealed Vessels (Headspace Test)
Solvent, Reactivity, Storage, Stability	NR; NR; stored at room temperature in original container in a dark ventilated cabinet; NR
Radiolabel, Source, State, Purity	No; Aldrich Chemical Company; NR; 99.7%
Blank and Control	inoculum control included; toxicity control included with test substance and reference substance; mean CO2 evolution=54.6%, no toxicity was indicated.
Oxygen and Inoculum	aerobic; activated sludge, non-adapted: activated sludge and sewage from Wareham Wastewater Treatment Plant, Wareham, Massachusetts
Duration, Parameter, System, and Sampling Frequency	29 days; CO2 evolution: 160-mL glass serum bottles mixed on rotary shaker tables; days 2, 4, 7, 10, 14, 21 and 29
pH Adjusted and pH	Not Reported; 7.4
Concentration	10 mgC/L
Composition and Test Temperature	mineral salts medium (phosphate buffer, calcium chloride, magnesium sulfate, ferric chloride); 20.8 to 21.6 C
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	not reported; not reported; yes; 108 test vessels were established: 27 vials for the test substance, 27 vials for the toxicity control, 27 vials for the reference substance (sodium benzoate) and 27 vials for the inoculum control.
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	Headspace analysis for determination of total inorganic carbon with a Dohrman DC-80 Total Organic Carbon analyzer; net cumulative percent CO2 evolved; Not Reported
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	3.70% CO2 evolution; ±1.54; day 29; Results valid; >60% CO2 was producedwithin a 10-day window after reaching 10% CO2 production.
Results Remarks and Results Details	Mean biodegradation peaked at 16.2% of theoretical at day 21.; 10.42±1.98, 13.75±0.91, 12.55±1.44, 14.70±2.59, 11.35±5.06, 16.23±5.66, and 3.70±1.54% CO2 evolution, after 2, 4, 7, 10, 14, 21 and 29 days, respectively.
Results Mean Total Recovery and Results per Recovery	not reported; not reported

EVALUATION

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

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Study Citation:	Gledhill, W. E. (2005). Determining the biodegradability of octamethylcyclotetrasiloxane based on the draft OECD 310 sealed vessel CO2 evolution biodegradation test.
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	7004961

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored and reported.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source and viability were reported.
	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	High	Sampling methods and interval were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	No sources of variability or uncertainty were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some analytical details missing, %recovery and mass balance 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	High	Reported values were within expected range as defined by reference substance.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; not specified; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Blank and Control	NR; NR
Oxygen and Inoculum	NR; Not Reported: NR
Duration, Parameter, System, and Sampling Frequency	NR; NR: NR; NR
pH Adjusted and pH	NR; NR
Concentration	NR NR - NR NR NR
Composition and Test Temperature	NR; NR
CEC, Water Aeration Dilution, Continuous Darkness, and Other Design	NR; NR; NR; NR
Results Details Method, Results per Degradation Parameter, and Direct Quantum Yield Results	NR; NR; NR
Results Value, Results Standard Deviation, Results Sample Time, and Results Reference Substance Compartments	NR; NR; NR; NR
Results Remarks and Results Details	No evidence exists for biodegradation of OMCTS (Dow Corning, 1984a). OMCTS had no measurable biochemical oxygen demand over a five-day period when seeded with secondary effluent from a waste treatment pond (Dow Corning 1976a). Moreover, no evidence exists for the biodegradation of two chemically similar but water soluble organosilicon compounds, dimethylsilanediol and tetramethyldisiloxanediol (Dow Corning 1984b, Dow Corning 1984c). Bayer Chemical (West Germany) has carried out biodegradation studies in which waste water that contained PDMS wassubjected to biological treatment in a laboratory-scale activated sludgeplant; no evidence for biodegradation was found (Dow Corning 1986b).; Not Reported
Results Mean Total Recovery and Results per Recovery	Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified
Metric 2:	Test Substance Purity	Low	The source and purity of the test substance were not reported or verified by analytical means.
Domain 2: Test Design			

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Biodegradation in Water
HERO ID:	5889398

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	Low	Not reported in this secondary source.
	Metric 4:	Test Substance Stability	Low	Not reported in this secondary source.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Uninformative	Not reported in this secondary source.
	Metric 6:	Testing Conditions	Uninformative	Not reported in this secondary source.
	Metric 7:	Testing Consistency	Uninformative	Not reported in this secondary source.
	Metric 8:	System Type and Design	Low	Not reported in this secondary source.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Uninformative	Not reported in this secondary source.
	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	No methodology reported.
	Metric 12:	Test Substance Purity	Low	Not reported in this secondary source.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Not reported in this secondary 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	Low	The analytical method was not reported.
	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	Uninformative	Data was qualitative summary.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type

Overall Quality Determination Uninformative

* Related References: cited from: 1)Dow Corning Corp. 1984a. Biochemical oxygen demand of OMCTS. Letter with attached studies from Cecil L. Frye to M.G. Price, Environmental Protection Agency. (December 12, 1984). 2) Dow Corning Corp. 1984b. TSCA sec 8(d) submission 878215091.Bioconcentration of octamethylcyclotetrasiloxane in fish. 1984. Washington, DC: Office of Toxic Substances, U.S. EnvironmentalProtection Agency. 3) Dow Corning Corp. 1976a (Oct. 18). Biochemical oxygen demand ofoctamethlcyclotetrasiloxane. Data sheet. File No: 1362-6 - Series No: I-OO35-29. Midland, MI 48640. 4) Dow Corning Corp. 1984b. Biological oxygen demand of tetramethylsiloxanediol. Letter with attached studies from C.L. Frye to M.G. Price, Environmental Protection Agency. (December 12, 1986). 5) Dow Corning Corp. 1984c. Twenty day biochemical oxygen demand of dimethylsilanediol with bacterial isolates previously exposed to silicones. Letter with attached studies from C.L. Frye to M.G. Price,Environmental Protection Agency. (December 12, 1984). 6) Dow Corning Corp. 1986b. Letter from E.J. Hobbs, Toxicology Department, to TSCA Public Information Office, Office of Pesticides and Toxic Substances, U.S. Environmental Protection Agency. (February 27, 1986).

Study Citation:	Grümping, R., Michalke, K., Hirner, A. V., Hensel, R. (1999). Microbial degradation of octamethylcyclotetrasiloxane. Applied and Environmental Microbiology 65(5):2276-2278.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6833987

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octametehylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: Degradation monitored by degradation product production.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Gelest, Inc. (Karlsruhe, Germany); NR; reagent-grade
Oxygen and Inoculum	anaerobic; sewage, predominantly domestic (adaptation not specified): Sludge was stored in plastic bottles at 4°C.
Duration, Parameter, System, and Sampling Frequency	3 months; not specified; test temperature: 37°C; tetrafluorethylene-hexafluorpropylene-copolymer bottles; atmosphere: CO2/H2 (20:80 vol/vol); test pressure: 1000 hPa.; every 50 days (from figure)
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	yes; not reported; sterilized by autoclave.
Concentration	100 mg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC/ICP-OES; Not Reported; degradation product formed
Results Remarks	Not Reported
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	not applicable; Not Reported; Not Reported; Not Reported
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; Not Reported
Results Value, Direct Quantum Yield Results, and Transformation Products	3%; Not Reported; 7.3 mg/kg of dimethylsilanediol at 100 days.

EVALUATION

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

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Study Citation:	Grümping, R., Michalke, K., Hirner, A. V., Hensel, R. (1999). Microbial degradation of octamethylcyclotetrasiloxane. Applied and Environmental Microbiology 65(5):2276-2278.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6833987

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	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 and uncertainty were not directly discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	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	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	A QSAR model was not reported.

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Study Citation:	Grümping, R., Michalke, K., Hirner, A. V., Hensel, R. (1999). Microbial degradation of octamethylcyclotetrasiloxane. Applied and Environmental Microbiology 65(5):2276-2278.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6833987

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

Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - determination of the biodegradability in a sediment/soil microbial system.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5889417

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Protocol for Determining the Biodegradation of Octamethylcyclotetrasiloxane in Sediment/Water Microbial system using a Modified Bourquin Apparatus, SLI Protocol # OMCTS SPECIAL (071390)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14-C labelled. 5.00 mCi; specific activity 28.4 mCi/mmole; Wizard Laboratories; NR; 99% (radiochemical purity)
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: Samples collected from Horseshoe Pond, Wareham, Massachusetts
Duration, Parameter, System, and Sampling Frequency	56 d; test mat.; Glass core chambers topped with glass stopped. Gasses trapped on Tenax volatile organic trap and KOH CO2 trap.; 0, 7, 14, 16, 21, 28, 35, 42, and 56
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	56 d; Gas traps, sediment, and water; 15 mL sediment (3.2% organic carbon, 74% sand, 22% silt, 4% clay); 90 mL water; Not reported; 5.5 (sediment)
Control Dark, Control, and Blank	Not Reported; Not reported; Sterile controls (amended with formaldehyde) included
Concentration	30 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	LSC by HPLC-RAM (gas traps); Tri-Carb Oxidizer and LSC (sediment); LSC (water samples); Tenax traps eluted with methanol; 2
Results Remarks	Small amounts (< 10%) of 14CO2 were recovered in the KOH traps without a consistent pattern, supporting that CO2 formation probably did not occur.
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; Sterile: 63.7 - 106.1%Test system: 52.5 - 99.5%
Results Value, Direct Quantum Yield Results, and Transformation Products	Negligible; Not Reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design			
	Metric 3: Study Controls	High	Sterile controls were included and were within an acceptable range.
	Metric 4: Test Substance Stability	Medium	The test substance preparation was reported generally but storage was not reported.
Domain 3: Test Conditions			

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Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - determination of the biodegradability in a sediment/soil microbial system.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5889417

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate testing conditions including sediment characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples 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 used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining biodegradation loss.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and applied appropriately.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical methods were reported, raw data and mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not performed.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and well characterized.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Technology Sciences Group, (1997). Fate and aerobic biodegradation of omcts in a sediment/water microcosm system.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5889472

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; OMCTS
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; other: Biodegradation in sediment/water microcosm
Solvent, Reactivity, Storage, Stability	Acetone; NR; Refrigerated; NR
Radiolabel, Source, State, Purity	Methyl-14C; 5.00 mCi, specific activity 28.4 mCi/mmole (213,000 dpm/ug); Wizard Laboratories, Davis, California; Colorless liquid; 99%
Oxygen and Inoculum	not specified; natural water / sediment: freshwater: Collected from Horseshoe Pond, uncontaminated site in Wareham, Massachusetts
Duration, Parameter, System, and Sampling Frequency	56 d; test mat.; Series of glass chambers sealed at the top with ground glass stopper fitted with gas inlet and outlet ports, Tenax and KOH traps connected to outflowing air tubes.; 0, 7, 14, 21, 28, 35, 42, and 56 d
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	56 d; Water, sediment, and volatile traps sampled.; 15 g dw sediment: 3.2% organic carbon, 74% sand, 22% silt, 4% clay; 90 mL water; Not reported; 5.5 (sediment)
Control Dark, Control, and Blank	yes; Not reported; Sterile controls with 3.7 mL formaldehyde
Concentration	30 µg/L
Analytical Method, Analytical Details, and Results Per Degredation Parameter	LSC, HPLC-RAM (Tenax, water), Tri-Carb Oxidizer (sediment); Tenax traps eluted with methanol; water samples also extracted according to Wells et al. 1993; 6
Results Remarks	Variable amounts $<$ 10% applied 14C detected in KOH traps, in both test and sterile systems. Degradation product believed to be due to alkaline hydrolysis.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	Not Reported; Not Reported; Not reported; Not reported
Results Details	No trend in OMCTS or single degradation product recovered in the Tenax traps for the test system or sterile control was observed.
Mean Total Recovery Results and Results Per Recovery	73.6%±14.0 (water), 72.3%±17.6 (sediment); Overall mass balance: 74.0%Overall sterile mass balance: 86.5%
Results Value, Direct Quantum Yield Results, and Transformation Products	No degradation occurred; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	High	The tests substance source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Sterile controls were reported and results were within an acceptable range.
Metric 4:	Test Substance Stability	High	Test substance preparation and storage were reported.
Domain 3: Test Conditions			

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Study Citation:	Technology Sciences Group, (1997). Fate and aerobic biodegradation of omcts in a sediment/water microcosm system.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	5889472

			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	Appropriate testing conditions, including sediment and water characteristics, were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across 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 used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining loss by biodegradation.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported and samples were collected at an appropriate frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical methods were appropriate; mass balance and extraction recovery were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and well justified by the data.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Xu, S. (2009). Anaerobic transformation of octamethylcyclotetrasiloxane (14C-D4) in aquatic sediment systems.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996287

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	None; screening test; Experimental; OECD Guideline 308 (Aerobic and Anaerobic Transformation in Aquatic Sediment Systems): with modifications
Solvent, Reactivity, Storage, Stability	NR; NR; -80°C; stable
Radiolabel, Source, State, Purity	14C-D4; 393.490±2.26 mCi/g; Dow Corning Corp. MI; Liquid; 97.0±0.10%
Oxygen and Inoculum	anaerobic; natural sediment: freshwater: Lake Pepin, WI sediment collected May 22, 2008
Duration, Parameter, System, and Sampling Frequency	29 wk; test mat.; Closed system containing sediment/water/headspace; 2 active and 2 sterilized for each predetermined sampling point; acclimatized before test chemical addition; various
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	from table: 8.9; 18.8; 31.8; 53.8; 81.8; 116.8; 123.8; 150.8; 203.8 hr; headspace; aqueous; sediment; sand/silt/clay: 42%/12%/46%; organic carbon: 3.7%; organic matter 6.2%; lake water; not reported; 7.9
Control Dark, Control, and Blank	yes; not applicable; sterilized with sodium azide
Concentration	130 - 270 ng/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	HPLC/RAM analysis; LCS; HPLC mobile phase water/acetonitrile; liquid scintillation counter used to measure total 14C radioactivity; 6
Results Remarks	The major degradation products are hydrolytic products, such as dimethylsilanediol and nonextractable silanols, while 14C-CO2 and 14C-methane generation is minimal, indicating complete metabolism of D4 or its degradation products is very slow.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	365 days; not reported; not applicable; Not Reported
Results Details	The D4 degradation in non-sterilized samples is almost the same as that in the chemically sterilized samples, suggesting that the degradation of D4 in the sediment under anaerobic conditions may be predominantly abiotic.
Mean Total Recovery Results and Results Per Recovery	Not Reported; all samples: 101.1±13.0%; sterilized: 105.1±9.9%; active: 97.3±14.8%
Results Value, Direct Quantum Yield Results, and Transformation Products	97.9% remaining; 1.79% RSD; Not Reported; monomer diol; silanols

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	A concurrent blank control was included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.

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Study Citation:	Xu, S. (2009). Anaerobic transformation of octamethylcyclotetrasiloxane (14C-D4) in aquatic sediment systems.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996287

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

Overall Quality Determination High

Study Citation:	Xu, S., Miller, J. (2009). Aerobic transformation of octamethylcyclotetrasiloxane (14CD4) in aquatic sediment systems.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996358

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	None; other; Experimental; OECD Guideline 308 (Aerobic and Anaerobic Transformation in Aquatic Sediment Systems): Modified OECD 308
Solvent, Reactivity, Storage, Stability	NR; NR; -80°C freezer; Material degrades if contact with strong acids or bases occur. In general, radioactive materials undergo degradation by radiolysis in storage. With high specific activity material radiolysis can occur at a faster rate.
Radiolabel, Source, State, Purity	14C-D4; specific activity 393.490±2.26 mCi/g; Dow Corning Corp, Auburn, MI; Colorless liquid; radiochemical purity: 97.0±0.10%
Oxygen and Inoculum	aerobic; natural sediment: freshwater: freshwater sediments form Lake Pepin, Wisconsin
Duration, Parameter, System, and Sampling Frequency	up to 156 days; CO2 evolution; modified glass 250-mL Erlenmeyer flask with a glass side arm; 18 sampling events for active tests; 6 sampling events for sterilized tests
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	not specified; duplicate samples collected at appropriate samples times; Headspace, sediment, and overlying water were analyzed separately; 2.5 cm in flasks (ca. 25 g dw) freshwater sediments form Lake Pepin, Wisconsin; lake water; not reported; 7.9
Control Dark, Control, and Blank	yes; not reported; 2 sets of sterilized controls were included; autoclaved and sodium azide
Concentration	130 - 270 ng/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	high performance liquid chromatography-radioactivity detection (HP LC/RAM) and liquid scintillation counting (LSC); not reported; 2
Results Remarks	generation of 14-C-CO2 was correlated with the concentration of the transformation product dimethylsilane-diol in active samples, suggesting that CO2 evolution may be generated from mineralization of hydrolysis products such as silanols rather than D4 itself.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	242 days; not reported; controls (sterile sediments); half-life reached 425 days (based on data between days 11 and 99) suggests that the hydrolysis of D4 in sediments may not be strictly abiotic.
Results Details	Rate from slope of regression=0.00286/day
Mean Total Recovery Results and Results Per Recovery	Total mass balance or recovery of added radioactivity was calculated at every sampling time; average recovery for all samples: 90.3±13.1% (3 samples with recovery less than 75% were excluded); total average radio-labeled recovery for the 22 wk incubation period: 88.5±9.6% (calculations were based on total radioactivity recovered for each sample)
Results Value, Direct Quantum Yield Results, and Transformation Products	less than 1% after 5 months; Not Reported; mainly hydrolysis products; dimethylsilanediol, non-extractable silanols

EVALUATION

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

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Study Citation:	Xu, S., Miller, J. (2009). Aerobic transformation of octamethylcyclotetrasiloxane (14CD4) in aquatic sediment systems.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996358

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing was consistent.
	Metric 8:	System Type and Design	High	The system was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	Inoculum source was reported.
	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	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability or uncertainty were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Some analytical details were omitted.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Xu, S., Miller, J. (2008). Aerobic transformation of octamethylcyclotetrasiloxane (D4) in water/sediment system. Interim report.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996675

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane (D4)
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; OECD Guideline 308 (Aerobic and Anaerobic Transformation in Aquatic Sediment Systems)
Solvent, Reactivity, Storage, Stability	di(ethylene glycol) methyl ether; NR; NR; Hydrolysis DT40 = 4 d
Radiolabel, Source, State, Purity	14C labelled; NR; NR; NR
Oxygen and Inoculum	aerobic; natural water / sediment: freshwater: Sediment and water collected from Sanford Lake, Michigan
Duration, Parameter, System, and Sampling Frequency	22 d; test mat.; 250 mL glass Erlenmeyer flasks with glass side arm, openings had screw cap and viton septum closure. Volatiles trapped in glass coil sitting in dry ice acetone bath, 14C-CO2 trapped in R.J. Harvey C-14 cocktail.; 0.08, 6, 11, 14.8, 19.8, and 21.8 days
Results Sample Time, Compartment, Sludge Compartment, Water Compartment, CEC, and pH	22 d; Air, water, and sediment sampled; 50 g dw sandy-silt sediment; 4:1 water sediment ratio; Not reported; 6.91 - 6.99 (sediment)
Control Dark, Control, and Blank	yes; Not reported; Not reported
Concentration	200 ng/g
Analytical Method, Analytical Details, and Results Per Degredation Parameter	LSC (air and sediment) HPLC/RAD (water and sediment); Sediment samples vortexed with THF, extract analyzed.; 2
Results Remarks	32% / 22d hydrolysis observed, unclear if strictly abiotic or microbially mediated.
Halflife, Standard Deviation Results, Reference Substance Results, and Reference Substance Compartment Results	47 d; Not reported; Not reported; Not reported
Results Details	R^2 of ln [D4]/[D4]0 vs Days: 0.963
Mean Total Recovery Results and Results Per Recovery	Not reported; 96.7% total radioactivity recovered after 22 days
Results Value, Direct Quantum Yield Results, and Transformation Products	< 0.15%; 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 but not storage were reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.

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Study Citation:	Xu, S., Miller, J. (2008). Aerobic transformation of octamethylcyclotetrasiloxane (D4) in water/sediment system. Interim report.
OECD Harmonized Template:	Biodegradation in Sediment
HERO ID:	6996675

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate test conditions including sediment characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The inoculum source was reported and is used for similar study types.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining biodegradation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate, frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate; recovery was reported and high, limits of detection and extraction efficiency were not reported. Raw data was reported graphically only on a log scale.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Degradation followed pseudo-first order kinetics.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and the study method improved upon a previous study.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (1997). Degradation of octamethylcyclotetrasiloxane (D4) in a soil, with cover letter dated 10/2/1997.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5887550

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, EndPoint, Type, Guideline	None; ready biodegradability; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	Pentane; NR; Refrigerated; Chemically stable
Radiolabel, Source, State, Purity	14C-D4; specific activity 2.0 mCi/mmol; Wizard Laboratories (Davis, California); NR; 99.7%, 99.9% (radiochemical purity)
Oxygen, pH, and CEC	not specified; 4.9; 10.66
Test Type, Test Temperature, and Test Details	laboratory; 22±2°C; 5.00 g air-dried soil, spiked with 25 mL D4 solution
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	clay; 2.22% organic matter; 21.2% sand; 24.0% silt; 54.8% clay; Not reported
Soil Classification, Microbial Biomass, and Humidity	Wahiawa soil (Oxisol) from Kunia Area, Oahu, Hawaii; Not reported: 100% relative humidity
Duration, Parameter, System, and Sampling Frequency	21 d; radiochem. meas.; 35 mL Teflon tubes closed with Teflon cap (group 1) or kept open and placed in desiccators containing K2HPO4 (group 2) or CaCl2 (group 3); 0, 1, 3, 7, 14, and 21 d
Control and Blank	Not Reported; Not Reported
Concentration	3.85 µCi/mL
Analytical Method, Analytical Details, and Results Per Degredation Parameter	LSC, HPLC/GCP, GC/MS, RP-HPLC, and combustion; Extracted 3x with hexane, 2x with 0.01 M CaCl2, and 0.1 M HCl; Radiolabeled test material
Results Remarks	Degradation percentage reported for saturated salt solutions only.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	99%; Not reported; 24 hr; Not reported; Polymer products did not form; 55.1 - 83.5% DMSD; < 4% non-extractable organosilicon
Results Details	First order degradationRate constant=0.771/day (group 1); 133.4 /d (group 3); 42.6 /d (group 2)Half-life=0.899 day (group 1); 5.2E-3 d (group 3); 23 min (group 2)
Mean Total Recovery Results and Results Per Recovery	Not reported; 98.5±1.5%

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	Sterile controls were not explicitly reported.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Dow Corning, (1997). Degradation of octamethylcyclotetrasiloxane (D4) in a soil, with cover letter dated 10/2/1997.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	5887550

EVALUATION

Domain	Metric		Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate testing conditions and soil characteristics were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across replicates 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 commonly used for similar studies.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining biodegradation loss.
	Metric 12:	Test Substance Purity	High	Sampling methods and frequency were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study method was not well described and degradation was only reported as log transformation.
	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 appropriate; limits of detection were not reported. Mass balance was reported and near 100%. Degradation data was reported as a log transformation only.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2014). Non-regulated study: DMSD environmental modeling using SIMPLETREAT and QWASI.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	9644522

EXTRACTION

Parameter	**Data**
CASRN and Test Material	1066-42-8; Not Reported
Confidentiality, EndPoint, Type, Guideline	none; other; experimental; other: 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
Oxygen, pH, and CEC	not specified; not specified; not specified
Test Type, Test Temperature, and Test Details	Not Reported; not specified; not specified
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	Not Reported; not specified; not specified
Soil Classification, Microbial Biomass, and Humidity	wet soils; not specified: not specified
Duration, Parameter, System, and Sampling Frequency	not specified; CO2 evolution; not specified; not specified
Control and Blank	not specified; not specified
Concentration	not specified -
Analytical Method, Analytical Details, and Results Per Degredation Parameter	not specified; not specified; not specified
Results Remarks	typical half-life ca. 1 year
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	not specified; not specified; not specified; not specified; not specified
Results Details	not specified
Mean Total Recovery Results and Results Per Recovery	not specified; not specified

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	Details were not reported in this source.
Domain 2: Test Design			
Metric 3:	Study Controls	Low	Details were not reported in this source.
Metric 4:	Test Substance Stability	Low	Details were not reported in this source.
Domain 3: Test Conditions			

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Study Citation:	Dow Corning, (2014). Non-regulated study: DMSD environmental modeling using SIMPLETREAT and QWASI.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	9644522

EVALUATION

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

Overall Quality Determination Low

* Related References: Sources cited to the general statement of biodegradation: (Lehmann, et al., 1996) HERO ID 7289207(Lehmann, et al., 1998) HERO ID 7289212 (Lehmann, et al. ,2002) HERO ID 7289211(Sabourin, et al., 1999) HERO ID 7289187(not in distiller at time of extraction)

Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: DMSD incubated in flasks of soil samples
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65E8 Bq/g); synthesized for the study; NR; 99.8% Notes: purified by HPLC
Oxygen, pH, and CEC	aerobic; 7.5; 16.7 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 25ºC; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	loam; 21% clay, 39% silt, 40% sand, 5.1% organic matter; NR
Soil Classification, Microbial Biomass, and Humidity	NR; 600 ug microbial carbon per g of soil (2.3% of OC): 23.3% at 0.03 MPa
Duration, Parameter, System, and Sampling Frequency	6 months; radiochem. meas.; Biometer flasks, fitted with plugs, were attached to an oxygen supply manifold and incubated in the dark; every 3 weeks for 30 weeks
Control and Blank	NR; Sterile control flask of Sloan soil was incubated with 0.5 ml of THF (tetrahydrofuran) and a control of 50 g sample was amended with DMSD and refrigerated
Concentration	1 - mg DMSD/kg soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Packard 2500 scintillation counter; Plugs were rinsed with THF; R $>$ 0.97; 14CO2 evolution
Results Remarks	NR
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.64-0.74% per week; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test material was identified by name.
	Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				

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Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported; however, the omissions were not likely to have a substantial impact on study results.
	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	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: DMSD incubated in flasks of soil samples
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65E8 Bq/g); synthesized for the study; NR; 99.8% Notes: purified by HPLC
Oxygen, pH, and CEC	aerobic; 6.1; 13.3 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 25ºC; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 10% clay, 36% silt, 54% sand, 6.6% organic matter; NR
Soil Classification, Microbial Biomass, and Humidity	NR; 360 ug microbial carbon per g of soil, (1.1% of OC): 21.5% at 0.03 MPa
Duration, Parameter, System, and Sampling Frequency	6 months; radiochem. meas.; Biometer flasks, fitted with plugs, were attached to an oxygen supply manifold and incubated in the dark; every 3 weeks for 30 weeks
Control and Blank	NR; Sterile control flask of Sloan soil was incubated with 0.5 ml of THF (tetrahydrofuran) and a control of 50 g sample was amended with DMSD and refrigerated
Concentration	1 - mg DMSD/kg soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Packard 2500 scintillation counter; Plugs were rinsed with THF; R $>$ 0.97; 14CO2 evolution
Results Remarks	NR
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	1.59-1.70% per week; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test material was identified by name.
	Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.

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Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported; however, the omissions were not likely to have a substantial impact on study results.
	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	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: DMSD incubated in flasks of soil samples
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65E8 Bq/g); synthesized for the study; NR; 99.8% Notes: purified by HPLC
Oxygen, pH, and CEC	aerobic; 5.2; 3.8 cmo/kg
Test Type, Test Temperature, and Test Details	laboratory; 25ºC; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sand; 4% clay, 7% silt, 89% sand, 1.8% organic matter; NR
Soil Classification, Microbial Biomass, and Humidity	NR; 250 ug microbial carbon per g of soil, (2.8% of OC): 6.3% at 0.03 MPa
Duration, Parameter, System, and Sampling Frequency	6 months; radiochem. meas.; Biometer flasks, fitted with plugs, were attached to an oxygen supply manifold and incubated in the dark; every 3 weeks for 30 weeks
Control and Blank	NR; Sterile control flask of Sloan soil was incubated with 0.5 ml of THF (tetrahydrofuran) and a control of 50 g sample was amended with DMSD and refrigerated
Concentration	1 - mg DMSD/kg soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Packard 2500 scintillation counter; Plugs were rinsed with THF; R $>$ 0.97; 14CO2 evolution
Results Remarks	NR
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.36-0.42% per week; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test material was identified by name.
	Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	High	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.

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Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported; however, the omissions were not likely to have a substantial impact on study results.
	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	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; biodegradability; experimental; other: DMSD incubated in flasks of soil samples
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65E8 Bq/g); synthesized for the study; NR; 99.8% Notes: purified by HPLC
Oxygen, pH, and CEC	aerobic; 7.4; 12.4 cmol/kg
Test Type, Test Temperature, and Test Details	laboratory; 25 deg C; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy clay loam; 24% clay, 21% silt, 55% sand, 2.9% organic matter; NR
Soil Classification, Microbial Biomass, and Humidity	NR; 400 ug microbial carbon per g of soil, (2.8% of OC): 18.6% at 0.03 MPa
Duration, Parameter, System, and Sampling Frequency	6 months; radiochem. meas.; Biometer flasks, fitted with plugs, were attached to an oxygen supply manifold and incubated in the dark; every 3 weeks for 30 weeks
Control and Blank	NR; Sterile control flask of Sloan soil was incubated with 0.5 ml of THF (tetrahydrofuran) and a control of 50 g sample was amended with DMSD and refrigerated
Concentration	1 - mg DMSD/kg soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	Packard 2500 scintillation counter; Plugs were rinsed with THF; R $>$ 0.97; 14CO2 evolution
Results Remarks	NR
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.42-0.50% per week; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test material was identified by name.
	Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	High	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.

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Study Citation:	Lehmann, R. G., Miller, J. R., Collins, H. P. (1998). Microbial Degradation of Dimethylsilanediol in Soil. Water, Air, and Soil Pollution 106(1-2):111-122.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289212

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported; however, the omissions were not likely to have a substantial impact on study results.
	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	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289211

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (specific activity of 26.1 uCi/mg; Synthesized for study; NR; 96.5% Notes: NR
Oxygen, pH, and CEC	aerobic; 6.1 (soil pH); NR
Test Type, Test Temperature, and Test Details	laboratory; 22ºC; NR
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; 62% sand, 21% silt, 17% clay, 3.3% Organic matter; NR
Soil Classification, Microbial Biomass, and Humidity	NR; NR: water contents of 9.2 and 5.9%, but was dried to 5.1% water content prior to use
Duration, Parameter, System, and Sampling Frequency	12 weeks; radiochem. meas.; Biometer flasks; Every third week
Control and Blank	NR; NR
Concentration	3 - ug DMSD/g soil
Analytical Method, Analytical Details, and Results Per Degredation Parameter	KOH solution to trap 14CO2 and soils were analyzed by combustion in a R.J. HarveyOX-500 Oxidizer for residual 14C; NR; Rate of biodegradation (based on 14CO2 produced in the biometer flasks)
Results Remarks	The DMSD in the soil was applied as part of Rye grass plant tissue; this was not found to affect its rate of biodegradation.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	0.3% per week; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test material was identified by name.
Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Study controls were not reported for the biodegradation experiment; however, the lack of data was not likely to have a substantial impact on study results.

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Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289211

EVALUATION

Domain	Metric		Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were 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	High	The testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply 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	Statistical methods or kinetic calculations were not fully described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable however, no biodegradation control or reference substance(s) details were reported for comparison.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

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Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289211

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

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	No; Other; Experimental; other: Biodegradation study performed in modified Gledhill flasks
Solvent, Reactivity, Storage, Stability	None; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]dimethylsilanediol, 275 mCi/g, 0.04% of all dimethylsilanediol molecules labeled, and labeled molecules had one of the two methyl groups with the 14C label; synthesized for study; NR; 99.9% pure dimethylsilanediol
Oxygen, pH, and CEC	aerobic; Guilderland soil pH 6.4; NR
Test Type, Test Temperature, and Test Details	laboratory; NR; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; Guilderland soil 10% clay, 14% silt, 76% sand, 18.6% organic carbon; NR
Soil Classification, Microbial Biomass, and Humidity	Sandy loam; residential garden soil: NR
Duration, Parameter, System, and Sampling Frequency	290 days; radiochem. meas.; Modified Gledhill flasks; Every few days (approx 5-20 from figures)
Control and Blank	NR; Blanks of 15 mL OptiFluor scintillation fluid with either 66 mL of water or 66 mL of acetonitrile; sterilized controls
Concentration	2000 - ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation count of 14C remaining in the soil; Not Reported; radioactivity 14CO2
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	9%; NR; 244 days; NR; NR
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; 99(±6)%

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	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:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions (including test temperature).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	No; Other; Experimental; other: Biodegradation study performed in modified Gledhill flasks
Solvent, Reactivity, Storage, Stability	None; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]dimethylsilanediol, 275 mCi/g, 0.04% of all dimethylsilanediol molecules labeled, and labeled molecules had one of the two methyl groups with the 14C label; synthesized for study; NR; 99.9% pure dimethylsilanediol
Oxygen, pH, and CEC	aerobic; Glendale soil pH 6.4; NR
Test Type, Test Temperature, and Test Details	laboratory; NR; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; Glendale soil 14% clay, 32% silt, 54% sand, 12.1% organic carbon; NR
Soil Classification, Microbial Biomass, and Humidity	Sandy loam; soil from a sludge disposal area: 40% moisture content
Duration, Parameter, System, and Sampling Frequency	290 days; radiochem. meas.; Modified Gledhill flasks; Every few days (approx 5-20 from figures)
Control and Blank	NR; Blanks of 15 mL OptiFluor scintillation fluid with either 66 mL of water or 66 mL of acetonitrile; sterilized controls
Concentration	2000 - ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation count of 14C remaining in the soil; Not Reported; radioactivity 14CO2
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	1.1%; NR; 255 days; NR; NR
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; 99(±6)%

EVALUATION

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

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

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 (including test temperature, soil humidity).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EVALUATION

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

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	No; Other; Experimental; other: Biodegradation study performed in modified Gledhill flasks
Solvent, Reactivity, Storage, Stability	None; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]dimethylsilanediol, 275 mCi/g, 0.04% of all dimethylsilanediol molecules labeled, and labeled molecules had one of the two methyl groups with the 14C label; synthesized for study; NR; 99.9% pure dimethylsilanediol
Oxygen, pH, and CEC	aerobic; Santa Barbara pH 6.3; NR
Test Type, Test Temperature, and Test Details	laboratory; NR; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	sandy loam; Santa Barbara soil 12% clay, 20% silt, 68% sand, 3.1% organic carbon; NR
Soil Classification, Microbial Biomass, and Humidity	sandy soil; Not Reported: 14% moisture content
Duration, Parameter, System, and Sampling Frequency	290 days; radiochem. meas.; Modified Gledhill flasks; Every few days (approx 5-20 from figures)
Control and Blank	NR; Blanks of 15 mL OptiFluor scintillation fluid with either 66 mL of water or 66 mL of acetonitrile; sterilized controls
Concentration	2000 - ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation count of 14C remaining in the soil; Not Reported; radioactivity 14CO2
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	2.64%; NR; 290 days; NR; NR
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; 99(±6)%

EVALUATION

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

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

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 (including test temperature).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EVALUATION

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

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	No; Other; Experimental; other: Biodegradation study performed in modified Gledhill flasks
Solvent, Reactivity, Storage, Stability	None; NR; NR; NR
Radiolabel, Source, State, Purity	[14C]dimethylsilanediol, 275 mCi/g, 0.04% of all dimethylsilanediol molecules labeled, and labeled molecules had one of the two methyl groups with the 14C label; synthesized for study; NR; 99.9% pure dimethylsilanediol
Oxygen, pH, and CEC	aerobic; Cobleskill garden soil, pH 6.9 mixed with forest soil pH 5.8; NR
Test Type, Test Temperature, and Test Details	laboratory; NR; Not Reported
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	loam; Cobleskill garden soil 34% clay, 18% silt, 48% sand, 4.7% organic carbon mixed with Cobleskill forest soil 26% clay, 42% silt, 32% sand, 3.7% organic carbon; NR
Soil Classification, Microbial Biomass, and Humidity	Cobleskill garden soil is Sandy clay loam and Cobleskill forest soil is loam; garden and forest soil: 20% moisture content
Duration, Parameter, System, and Sampling Frequency	290 days; radiochem. meas.; Modified Gledhill flasks; Every few days (approx 5-20 from figures)
Control and Blank	NR; Blanks of 15 mL OptiFluor scintillation fluid with either 66 mL of water or 66 mL of acetonitrile; sterilized controls
Concentration	2000 - ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation count of 14C remaining in the soil; Not Reported; radioactivity 14CO2
Results Remarks	Not Reported
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	1.5%; NR; 290 days; NR; NR
Results Details	Not Reported
Mean Total Recovery Results and Results Per Recovery	Not Reported; 99(±6)%

EVALUATION

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

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

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 (including test temperature).
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information or inoculum source were reported.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1996). Biodegradation of dimethylsilanediol in soils. Applied and Environmental Microbiology 62(12):4352-4360.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	3118741

EVALUATION

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

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1999). Mineralization of dimethylsilanediol by microorganisms isolated from soil. Environmental Toxicology and Chemistry 18(9):1913-1919.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289187

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; other; experimental; other: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD specific activity of 175 uCi/g; Synthesized for study; NR; 99.9% Notes: NR
Oxygen, pH, and CEC	aerobic; NR; NR
Test Type, Test Temperature, and Test Details	laboratory; room temperature; Pure Culture: Fusarium Oxysporum Schlechtendahl and Arthrobacter sp.
Soil Type, Clay Silts and Organic Carbon, and Bulk Density	other; 39% sand, 44% silt, 17% clay, 4.3% organic carbon; NR
Soil Classification, Microbial Biomass, and Humidity	loam; NR: moisture content of 22.3%
Duration, Parameter, System, and Sampling Frequency	300 days (according to Figure 2, 3); radiochem. meas.; KOH traps; Approx. every 16 days (according to Figure 2, 3)
Control and Blank	NR; Prepared by adjusting the moisture content so they would be at 1 bar after all additions had been made and autoclaving in closed vessles for 1 h.
Concentration	100 - ppm
Analytical Method, Analytical Details, and Results Per Degredation Parameter	liquid scintillation counting; NR; 14CO2 production
Results Remarks	The products of dimethylsilanediol biodegradation were identified as the intermediate product, methylsilanetriol, and the final product, inorganic silicate.
Results Value, Standard Deviation Results, Sample Time Results, Reference Substance Results, and Referencs Substance Compartment Results	approx 22% for F. oxysporum schlecht and 13-14% for arthrobacter sp.; NR; NR; NR; NR
Results Details	NR
Mean Total Recovery Results and Results Per Recovery	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	Test substance source and purity were reported by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Study controls were reported.
Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1999). Mineralization of dimethylsilanediol by microorganisms isolated from soil. Environmental Toxicology and Chemistry 18(9):1913-1919.
OECD Harmonized Template:	Biodegradation in Soil
HERO ID:	7289187

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
Metric 7:	Testing Consistency	High	The testing conditions were consistent.
Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	Medium	The test organism, species, or inoculum source were reported, but are not routinely used for similar study types.
Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
Metric 12:	Test Substance Purity	Medium	Sampling methods were reported.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	High	The analytical method was suitable.
Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.
Overall Quality Determination		**High**	

Study Citation:	Annelin, R. B., Frye, C. L. (1989). The piscine bioconcentration characteristics of cyclic and linear oligomeric permethylsiloxanes. Science of the Total Environment 83(1-2):1-11.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6836346

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	no; experimental; other: resaturation method
Solvent, Reactivity, Storage, Stability	acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	fathead minnows (Pimephales promelas); 0.5-2.0 g
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; 20±2°C; 7.6±0.1; 7 days
Media Type, TOC, and Salinity	not specified; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	8.0±0.2 mg/L; not reported; hardness: 104±4 mg/L as CaCO3; alkalinity 59±3 mg/l as CaCO3
Exposure Route, Elimination, and Nominal Measurements	whole fish; not reported; measured
Test Type, Test Temperature, and Test Condition Comments	flow-through; 20±2°C; 18/6 hour light/dark cycle; water cycled through resaturation column loaded with 0.5 g D4/250 g of sand at ~10 L/hour
Duration, Parameter, and Sampling Frequency	21 days (14 day uptake; 7 day depuration); BCF; not reported
Concentration	20 - 80 ppb
Analytical Method and Analytical Details	GLC; detection limit water: 0.001 ug/g; fish: 0.3 ug/g;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; whole body ww; fish concentration/water concentration
Results Value and Results Details	1875-10,000; uptake was 150-200 ppm; water concentrations were 20-80 ppb
Metabolites, Reference, and Results Reference Substance	none detected; 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 results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Annelin, R. B., Frye, C. L. (1989). The piscine bioconcentration characteristics of cyclic and linear oligomeric permethylsiloxanes. Science of the Total Environment 83(1-2):1-11.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6836346

			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 or study groups.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There 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 (if applicable) were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The lipid content or lipid normalized BCF was not reported for BCF studies, but these deficiencies or 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.

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Study Citation:	Annelin, R. B., Frye, C. L. (1989). The piscine bioconcentration characteristics of cyclic and linear oligomeric permethylsiloxanes. Science of the Total Environment 83(1-2):1-11.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6836346

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

Overall Quality Determination Medium

Study Citation:	Borgå, K., Fjeld, E., Kierkegaard, A., McLachlan, M. S. (2012). Food web accumulation of cyclic siloxanes in Lake Mjøsa, Norway. Environmental Science & Technology 46(11):6347-6354.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2150677

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane (D4)
Confidentiality, Type, and Guideline	none; experimental; other: non-guideline: field study -bioaccumulation and trophic magnification
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Surrogate standard: 13C-D4 in ethyl acetate; NR; biota samples; NR
Test Organism and Test Organism Details	zooplankton (epilimnion, hypolimnion, mysis), vendace, smelt, trout; species collected from Lake Mjosa in Norway
Lipid Content, Test Temperature, pH, and Depuration Time	lipid% ranged from 0.3 (epilimnion) to 3.9 (vendace); ambient; not reported; not reported
Media Type, TOC, and Salinity	natural water; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	field study; not reported; measured
Test Type, Test Temperature, and Test Condition Comments	field study; ambient; Estimated trophic levels: zooplankton - 2.0 epilimnion, 2.7 hypolimnion, 2.6 mysis, 3.6 vendace, 4.1 smelt, 4.2 trout
Duration, Parameter, and Sampling Frequency	NA; field study of pelagic food web; not reported; Samples collected in Sept - October 2010
Concentration	< 38 - ca. 190 ng/g lw
Analytical Method and Analytical Details	Purge and trap method; GC-MS. Process and field blanks were included.; LOQ = mean plus 10x standard deviation of procedural blanks. Results were not blank corrected; concentrations below the LOQ included as measured values.;
Rate Constant and Results per Recovery	not reported; not reported
Statistics, Basis, and Calculation Basis	not reported; whole body w.w.; steady-state
Results Value and Results Details	Trophic magnification factors were not calculated for the target chemical D4 as there were too many sample concentrations below the LOQ.; Only fish samples had concentrations ranging from below the LOQ up to 4.5 ng/g ww. Concentrations (ng/g lipid weight) were reported as <83 (epilimnion), <190 (hypolimnion), <38 (mysis), <71 (vendace muscle), <150 (smelt muscle), and 190±80 (trout muscle).
Metabolites, Reference, and Results Reference Substance	not reported; not reported; not reported

EVALUATION

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

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Study Citation:	Borgå, K., Fjeld, E., Kierkegaard, A., McLachlan, M. S. (2012). Food web accumulation of cyclic siloxanes in Lake Mjøsa, Norway. Environmental Science & Technology 46(11):6347-6354.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2150677

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Limited details regarding this metric.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	The outcome assessment methodology addressed the intended outcome of interest; however, due to measured concentrations being below the LOQ of the analytical method, calculations were not reasonable for the target chemical.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of uncertainty in the measurements (concentrations <LOQ) prevented reliable use of the results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	Results for aquatic accumulation were not obtained.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination NEED TO FIX

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994688

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	no; experimental; other: uptake and elimination in fish
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: mixture of cyclic and linear siloxane oligomers
Test Organism and Test Organism Details	guppies (Poecilia reticulata) and goldfish (Carassius auratus); average weight: 0.17 g for guppies; 1.8 g for goldfish, respectively.
Lipid Content, Test Temperature, pH, and Depuration Time	6.5% for guppies; 2.3% for goldfish; 22°C; not reported; not reported
Media Type, TOC, and Salinity	other: 50% tap/50% demineralized water; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	continuous aeration; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	whole body and dietary; Not Reported; nominal
Test Type, Test Temperature, and Test Condition Comments	not specified; 22°C; for water-exposure experiments a saturated solution of the test substances was prepared using a continuous-flow saturation system; for dietary experiments food concentrations were 1008–1044 mg/kg in the guppy and 306–425 mg/kg in goldfish experiments; however, graphically these concentrations appear to be around 1 mg/kg.
Duration, Parameter, and Sampling Frequency	water experiments 20 days; feeding experiments up to 12 weeks; steady-state BCF and BMF; not reported
Concentration	Not Reported
Analytical Method and Analytical Details	GC/FID; GC/MS; not reported;
Rate Constant and Results per Recovery	not reported; not reported
Statistics, Basis, and Calculation Basis	Not Reported; not specified; not specified
Results Value and Results Details	1090 L/kg and 0.06, respectively for guppies; depuration half-life ~3.8 days.
Metabolites, Reference, and Results Reference Substance	not reported; not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name, structure and CASRN.
	Metric 2:	Test Substance Purity	Low	The test substance used was a mixture of chemicals.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Concurrent control group details were not included; however, these may be available in the cited reference.
	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:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994688

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Nominal estimates of media concentrations were provided, but, the levels were not measured or suitable to the study type or outcome(s) of interest.
	Metric 6:	Testing Conditions	Low	Limited data was provided on the test conditions.
	Metric 7:	Testing Consistency	Low	Limited data was provided for test consistency.
	Metric 8:	System Type and Design	Low	Equilibrium was not reported; however, results were given as steady-state.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
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	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the lack of information 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 (if applicable) were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Limited information was available.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis or kinetic calculations were not conducted or were not described clearly.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination **Low**

* Related References: Cites: HERO ID: 2196294; Opperhuizen A, Damen H W J, Asyee G M, and van der Steen J M D, 1987, Uptake and elimination by fish of polydimethylsiloxanes (silicones) after dietary and aqueous exposure. Toxicology and Environmental Chemistry, 13, 265–285.

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994688

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	no; experimental; other: dietary bioaccumulation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-D4; NR; NR; 99.1%
Test Organism and Test Organism Details	rainbow trout (O. mykiss); Average length of 52 mm (range 47–57 mm) and an average weight of 1.3 g (range 0.91–1.7 g) at the start of the test
Lipid Content, Test Temperature, pH, and Depuration Time	mean: 5.83%; 3.44% at start of test; 6.74% at end of uptake phase; 7.85% at end of depuration phase; 12±2°C; 7.0–7.7; 42 days
Media Type, TOC, and Salinity	other: dechlorinated municipal water; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	>62%; not reported; 132 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	dietary; Not Reported; nominal feed concentration of 500 mg/kg, fed at a constant rate of 3% wet body weight/day
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12±2°C; Not Reported
Duration, Parameter, and Sampling Frequency	77 days; lipid normalized BMF; day 1, 3, 7, 10, 14, 21, 28, 35 during uptake phase; day 1, 2, 4, 7, 14, 28, 42 of depuration phase.
Concentration	Not Reported
Analytical Method and Analytical Details	radiochem; not reported;
Rate Constant and Results per Recovery	uptake: 0.0389/day; depuration 0.0283/day; growth-corrected uptake: 0.0119/day; growth-corrected depuration: 0.00659/day; not reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	0.47; Kinetic BMF 1.8 wet weight fish/wet weight food basis using growth-corrected rate constants. Growth-corrected depuration half-life = 105 days
Metabolites, Reference, and Results Reference Substance	not reported; Not Reported; Not Reported

EVALUATION

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

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Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994688

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this 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(s) of interest.
	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	The differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	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 content or the lipid-normalized bioconcentration factor (BCF) was reported for BCF studies.
	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

* Related References: Cites: HERO ID: 7330055: Dow Corning, 2007, 14C-Octamethylcyclotetrasiloxane (14C-D4): Dietary Bioaccumulation in the Rainbow Trout (Oncorhynchus mykiss) under Flow-Through Test Conditions. HES Study No. 10166-101. Auburg, MI: Health and Environmental Sciences, Dow Corning Corporation.

Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; experimental; other: mass balance approach with test substance to determine the rates of uptake, internal distribution, biotransformation, and elimination as well as BCFs and BMFLs and 14C-radiolabeled D4 to identify metabolites
Solvent, Reactivity, Storage, Stability	none; hexane for reference compounds; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	14C-radiolabeled D4; Dow Chemical (from supporting information); Not reported; >97% (from supporting information) Notes: Not reported
Test Organism and Test Organism Details	rainbow trout (O. mykiss); juvenile; purchased from Sun Valley Trout Park (Mission, BC, Canada)
Lipid Content, Test Temperature, pH, and Depuration Time	4.6 (0.2 SE)%; 12.0-13.0 deg C; Not reported; 60 days
Media Type, TOC, and Salinity	not specified; 7.1 mg/L; reported as organic carbon concentration in water (COC); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	ingestion of dosed food; dietary; gastrointestinal biotransformation rate constants of 2.1 (0.70 SE) calculated with possible D4 metabolites accounting for 72.1% in corresponding radioactivity study; Concentrations in food (CDiet) = 1.4 (0.22 SE) mg/g-food
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12.0-13.0 deg C; 0.0125 kg of food/kg of ww fish = Feeding rate of the fish; determined from the actual weights of the fish after the fish were sacrificed
Duration, Parameter, and Sampling Frequency	Approx 100 days in total, 35 days uptake phase and 60 days depuration period; bioconcentration factor (BCF); days 3, 7, 10, 14, 17, 21, 28, 31, and 35 of uptake and 0, 1, 7, 14, 28, 42, 49, and 60 of depuration phase
Concentration	1.4 - mg/g-food
Analytical Method and Analytical Details	Agilent 6890 gas chromatograph coupled with an Agilent 5973N mass spectrometer (GC-MS); radioactivity amount was determined by liquid scintillation spectroscopy (LSS) using a PerkinElmer TriCarb and reverse-phase HPLC/RAM analysis for 14C-D4 and 14C-metabolites;
Rate Constant and Results per Recovery	Not Reported; extraction efficiency measured with M4Q but results not reported
Statistics, Basis, and Calculation Basis	Standard errors reported for all replicate values; Not Reported; Not Reported
Results Value and Results Details	4153 (534 SE) L/kg-ww; BCF5% = 3809 (490 SE)
Metabolites, Reference, and Results Reference Substance	Not Reported; 1,2,4,5-tetrachlorobenzene (TeCB, CAS number: 95-94-3), pentachlorobenzene (QCB, CAS number: 608-93-5), hexachlorobenzene (HCB, CAS number: 118-74-1), PCB52 (CAS number: 35693-99-3), PCB153 (CAS number: 35065-27-1), and decachlorobiphenyl (PCB209, CAS number: 2051-24-3); BCF ranged from 6513 (1439 SE) for TeCB to 29782 (24404 SE) L kg-ww−1 for PCB52 at an organic carbon concentration in the water (COC) of 7.1 mg L−1

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified definitively.
	Metric 2: Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design			

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included, where applicable.
	Metric 4:	Test Substance Stability	Medium	Some details regarding 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., water pH, dissolved oxygen); 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	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design (i.e., static, semi-static, and flow-through; sealed, open) were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not appliable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information or inoculum source were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and percent recovery appeared to be considered but not reported; however, target chemical and transformation product concentrations and mass balance were reported.

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; experimental; other: mass balance approach with test substance to determine the rates of uptake, internal distribution, biotransformation, and elimination as well as BCFs and BMFLs and 14C-radiolabeled D4 to identify metabolites
Solvent, Reactivity, Storage, Stability	none; hexane for reference compounds; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	14C-radiolabeled D4; Dow Chemical (from supporting information; Not reported; >97% (from supporting information) Notes: Not reported
Test Organism and Test Organism Details	rainbow trout (O. mykiss); juvenile; purchased from Sun Valley Trout Park (Mission, BC, Canada)
Lipid Content, Test Temperature, pH, and Depuration Time	4.6 (0.2 SE)%; 12.0-13.0 deg C; Not reported; 60 days
Media Type, TOC, and Salinity	not specified; 7.1 mg/L; reported as organic carbon concentration in water (COC); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	ingestion of dosed food; dietary; gastrointestinal biotransformation rate constants of 2.1 (0.70 SE) calculated with possible D4 metabolites accounting for 72.1% in corresponding radioactivity study; Concentrations in food (CDiet) = 1.4 (0.22 SE) mg/g-food
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12.0-13.0 deg C; 0.0125 kg of food/kg of ww fish = Feeding rate of the fish; determined from the actual weights of the fish after the fish were sacrificed
Duration, Parameter, and Sampling Frequency	Approx 100 days in total, 35 days uptake phase and 60 days depuration period; biomagnification factors (BMFL); days 3, 7, 10, 14, 17, 21, 28, 31, and 35 of uptake and 0, 1, 7, 14, 28, 42, 49, and 60 of depuration phase
Concentration	1.4 - mg/g-food
Analytical Method and Analytical Details	Agilent 6890 gas chromatograph coupled with an Agilent 5973N mass spectrometer (GC-MS); radioactivity amount was determined by liquid scintillation spectroscopy (LSS) using a PerkinElmer TriCarb and reverse-phase HPLC/RAM analysis for 14C-D4 and 14C-metabolites;
Rate Constant and Results per Recovery	Not Reported; extraction efficiency measured with M4Q but results not reported
Statistics, Basis, and Calculation Basis	Standard errors reported for all replicate values; lipid-normalized; wet-weight
Results Value and Results Details	0.44 (0.08 SE) kg lipid/kg lipid; Authors propose the results of this study aligns/supports majority of field bioaccumulation studies which suggest low D4 bioaccumulation. Intestinal biotransformation = 2.1 (0.70 SE) day-1; metabolite formation = 52.0 (17 SD)%; dietary uptake efficiencies = 15.5 (2.9 SE)%. At steady state: 22.16% of the ingested doses are bypassed in the intestinal tract and excreted in the feces (never absorbed into the body of the fish), 62.36% metabolized, 15.83% absorbed into the body of the fish.
Metabolites, Reference, and Results Reference Substance	Not Reported; 1,2,4,5-tetrachlorobenzene (TeCB, CAS number: 95-94-3), pentachlorobenzene (QCB, CAS number: 608-93-5), hexachlorobenzene (HCB, CAS number: 118-74-1), PCB52 (CAS number: 35693-99-3), PCB153 (CAS number: 35065-27-1), and decachlorobiphenyl (PCB209, CAS number: 2051-24-3); BMFL ranged from 0.68 (0.08 SE) kg-lipid kg-lipid−1 for TeCB to 9.52 (3.60 SE) kg-lipid kg-lipid−1 for PCB209

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design			

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included, where applicable.
	Metric 4:	Test Substance Stability	Medium	Some details regarding 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., water pH, dissolved oxygen); 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	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design (i.e., static, semi-static, and flow-through; sealed, open) were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not appliable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information or inoculum source were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and percent recovery appeared to be considered but not reported; however, target chemical and transformation product concentrations and mass balance were reported.

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; experimental; other: mass balance approach with test substance to determine the rates of uptake, internal distribution, biotransformation, and elimination as well as BCFs and BMFLs and 14C-radiolabeled D4 to identify metabolites
Solvent, Reactivity, Storage, Stability	none; hexane for reference compounds; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	14C-radiolabeled D4; Dow Chemical (from supporting information); Not reported; >97% (from supporting information) Notes: Not reported
Test Organism and Test Organism Details	rainbow trout (O. mykiss); juvenile; purchased from Sun Valley Trout Park (Mission, BC, Canada)
Lipid Content, Test Temperature, pH, and Depuration Time	4.6 (0.2 SE)%; 12.0-13.0 deg C; Not reported; 60 days
Media Type, TOC, and Salinity	not specified; 2.0 mg/L; reported as organic carbon concentration in water (COC); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	ingestion of dosed food; dietary; gastrointestinal biotransformation rate constants of 2.1 (0.70 SE) calculated with possible D4 metabolites accounting for 72.1% in corresponding radioactivity study; Concentrations in food (CDiet) = 1.4 (0.22 SE) mg/g-food
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12.0-13.0 deg C; 0.0125 kg of food/kg of ww fish = Feeding rate of the fish; determined from the actual weights of the fish after the fish were sacrificed
Duration, Parameter, and Sampling Frequency	Approx 100 days in total, 35 days uptake phase and 60 days depuration period; bioconcentration factor; days 3, 7, 10, 14, 17, 21, 28, 31, and 35 of uptake and 0, 1, 7, 14, 28, 42, 49, and 60 of depuration phase
Concentration	1.4 - mg/g-food
Analytical Method and Analytical Details	Agilent 6890 gas chromatograph coupled with an Agilent 5973N mass spectrometer (GC-MS); radioactivity amount was determined by liquid scintillation spectroscopy (LSS) using a PerkinElmer TriCarb and reverse-phase HPLC/RAM analysis for 14C-D4 and 14C-metabolites;
Rate Constant and Results per Recovery	Not Reported; extraction efficiency measured with M4Q but results not reported
Statistics, Basis, and Calculation Basis	Standard errors reported for all replicate values; Not Reported; Not Reported
Results Value and Results Details	8258 (1062 SE) L/kg-ww; BCF5% = 7576 (974 SE); authors not that the sensitivity of D4 BCF in fish to variations in COC and KOC illustrates the importance of the sorption of very hydrophobic substances to dissolved organic matter in water and may be one of the main reasons for the large variation in the reported BCFs of D4 in fish
Metabolites, Reference, and Results Reference Substance	Not Reported; 1,2,4,5-tetrachlorobenzene (TeCB, CAS number: 95-94-3), pentachlorobenzene (QCB, CAS number: 608-93-5), hexachlorobenzene (HCB, CAS number: 118-74-1), PCB52 (CAS number: 35693-99-3), PCB153 (CAS number: 35065-27-1), and decachlorobiphenyl (PCB209, CAS number: 2051-24-3); 6569 (1451 SE) for TeCB to 35846 (29372 SE) L kg-ww−1 for PCB52 at an organic carbon concentration in the water (COC) of 2.0 mg L−1

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included, where applicable.

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Some details regarding 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., water pH, dissolved oxygen); 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	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design (i.e., static, semi-static, and flow-through; sealed, open) were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not appliable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information or inoculum source were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Extraction efficiency and percent recovery appeared to be considered but not reported; however, target chemical and transformation product concentrations and mass balance were reported.

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Study Citation:	Cantu, M. A., Durham, J. A., Mcclymont, E. L., Vogel, A. H., Gobas, F. (2024). Low dietary uptake efficiencies and biotransformation prevent biomagnification of octamethylcyclotetrasiloxane (D4) and decamethylcyclopentasiloxane (D5) in Rainbow trout.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	11592108

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s).
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Compton, K. L. (2019). Dietary biotransformation and bioaccumulation of cyclic siloxanes in rainbow trout (Oncorhynchus mykiss).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	9960764

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	none; experimental; other: non-guideline laboratory study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; volatilization likely occurred during sample extractions
Radiolabel, Source, State, Purity	NR; Dow Corning, Inc; NR; NR
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); 252 juvenile rainbow trout
Lipid Content, Test Temperature, pH, and Depuration Time	average % lipid sampled from fish at three different sampling points = 3.69; uptake day 2 = 2.43%, depuration day 14 = 4.28%, and depuration day 28 = 4.37%; 13.4±0.5°C; not reported; 28 day depuration period
Media Type, TOC, and Salinity	de-chlorinated municipal water; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	diet spiked with D4: feeding rate = 1% bw/d; not reported; nominal (measured)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 13.4±0.5°C; 12:12 hour light:dark photoperiod
Duration, Parameter, and Sampling Frequency	10 day uptake period; other; triplicate samples collected on days 2, 3 and 5 (uptake), and days 0, 1, 2, 3, 4, 5, 8, 14 and 28 (depuration)
Concentration	2 (0.84±0.07) g/kg feed
Analytical Method and Analytical Details	GC-MS; detection limit ca. 2E-9 g/mL (5.95613E-10 mol/kg ww fish);
Rate Constant and Results per Recovery	uptake rate constant (Kd) = 0.0032±0.0006 d-1; somatic depuration rate constant (Kbt) = 0.0446±0.0183 d-1 (p=0.034, R-squared=0.993; experimental), 0.048±0.0175 d-1 (p=0.01, ADME-B model); dietary somatic biotransformation rate constant (Kbm)= 0.039±0.019 d-1;; 42% (low recovery attributed to volatilization loss during extraction)
Statistics, Basis, and Calculation Basis	statistical analyses performed; ANOVAs p = 0.05; wet weight; not specified
Results Value and Results Details	BCFww = 2864.6±1112.1 L/kg; BMF(lipid normalized) = 0.35±0.08 kg/kg; dietary uptake absorption efficiencies (Ed) = 0.322±0.034; biotransformation rate constant in gut (Kgm) = 1.26±0.61
Metabolites, Reference, and Results Reference Substance	not reported; 1,2,4,5- tetrachlorobenzene (TCBz), pentachlorobenzene (PCBz), hexachlorobenzene (HCBz), 2,2',5,5'-PCB (PCB-52), 2,2',4,4',5,5'-PCB (PCB-153) and 2,2',3,3',4,4',5',5',6,6'-PCB (PCB-209); dietary somatic biotransformation rate constant were derived using a co-exposure of non-metabolized reference chemicals

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A control tank and reference tank were included.

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Study Citation:	Compton, K. L. (2019). Dietary biotransformation and bioaccumulation of cyclic siloxanes in rainbow trout (Oncorhynchus mykiss).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	9960764

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.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	The system type and design (closed, flow-through) 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.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	Medium	Minor limitations were identified in sampling methods (volatilization).
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.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations and extraction efficiency 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	The study results were reasonable.
	Metric 18:	QSAR Models	High	The QSAR model had a defined, unambiguous endpoint.

Overall Quality Determination High

Study Citation:	Cui, S., Fu, Q., An, L., Yu, T., Zhang, F., Gao, S., Liu, D., Jia, H. (2019). Trophic transfer of cyclic methyl siloxanes in the marine food web in the Bohai Sea, China. Ecotoxicology and Environmental Safety 178:86-93.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834013

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Trophic magnification factor of D4 in a zooplankton-invertebrate-fish food web.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Field samples; NR; NR Notes: Chemical details were reported in the supporting information.
Test Organism and Test Organism Details	Seabird: Saunders gull, Herring gull; Fish: Monkfish, Moray, Goby, Jonyer's tonguesole, Hairtail; Crustaceans: Chinese shrimp, Whiskered velvet shrimp, Mantis shrimp, Japanese stone crab, Swimming crab.; Mollusks: Cockles, Naticidae, Rapana venosa, Short-necked clam; Zooplankton.
Lipid Content, Test Temperature, pH, and Depuration Time	Lipid content was measured and all concentrations were presented as wet weight and lipid equivalent.; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Field samples were collected.; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	Samples were collected from the Bohai Sea (Northern China) during September and October 2014.; Not Reported; 518 individual samples were collected. Composites were made from organisms <10g. 151 samples were used for treatment.
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; Oscillating extracted, rotary evaporated, and solvent exchanged. Analyze with Thermo TRACE 2000 GC with PolarisQ MS in electron impact mode.;
Rate Constant and Results per Recovery	Not reported; Method detection limit (ng/g ww): 1.7; Mean recovery: 100±10%
Statistics, Basis, and Calculation Basis	Relative standard deviation of method repeatability: 10%; Not Reported; Not Reported
Results Value and Results Details	Trophic magnification factor (slope of regression between lipid normalized chemical concentration and trophic levels): 1.7; Confidence interval (95%): 1.1-2.6. Significant positive correlations suggesting significant magnification (R^2, p<0.05)
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 was identified in field samples using appropriate analytical methods.
Domain 2: Test Design			
Metric 3:	Study Controls	High	The study used appropriate controls.
Metric 4:	Test Substance Stability	High	The preparation of the samples was reported and appropriate.

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Study Citation:	Cui, S., Fu, Q., An, L., Yu, T., Zhang, F., Gao, S., Liu, D., Jia, H. (2019). Trophic transfer of cyclic methyl siloxanes in the marine food web in the Bohai Sea, China. Ecotoxicology and Environmental Safety 178:86-93.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834013

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test material.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	Multiple field samples were collected and the treatments were reported and consistent across the sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate (field study).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organisms were reported and measured for lipid content.
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 were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported for the TMF calculation and concentration measurements.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and the analytical method was suitable for detection and quantification of the target substance.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Domoradzki, J. Y., Sushynski, J. M., Thackery, L. M., Springer, T. A., Ross, T. L., Woodburn, K. B., Durham, J. A., McNett, D. A. (2017). Metabolism of 14C-octamethylcyclotetrasiloxane ([14C]D4) or 14C-decamethylcyclopentasiloxane ([14C]D5) orally gavaged in rainbow trout (Oncorhynchus mykiss). Toxicology Letters 279(Suppl. 1):115-124.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833995

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; other: metabolism in rainbow trout
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-D4; 6.883 mCi/g; Dow Corning Corporation, Auburn, MI; NR; NR
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); mature males weighing 1.0-1.4 kg; purchased from Greenspring Trout Farms, Inc., Newville, PA; acclimated for 2 weeks
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; 12±2°C; 8.2; not applicable
Media Type, TOC, and Salinity	not specified; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	8.1-10.8 ppm; >75% saturation; 300 umhos/cm; 136-140 mg/L as CaCO3
Exposure Route, Elimination, and Nominal Measurements	oral; urine samples collected by catheter.; nominal
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12±2°C; photoperiod: 16 hours light/8 hours dark
Duration, Parameter, and Sampling Frequency	96 hours; % of total radioactivity in carcass; tissues, bile& blood; urine; feces..; 0, 2, 4, 8, 12, 24, 48, 72, 96 hours
Concentration	15 mg/kg body weight
Analytical Method and Analytical Details	GC/MS; LSA; HPLC/RAD; limit of quantitation for bile, liver, milt digestive tract, fat: 0.08, 0.04, 0.04, 0.04, 0.08 ug/sample, respectively.;
Rate Constant and Results per Recovery	metabolic rate constant: km(blood)≥0.01/day; 65-90%; mean 79%
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	69; 12; 1; 18; % of radioactivity as parent: bile 5%; liver 60%; milt 80%; digestive tract 98%; fat 103%
Metabolites, Reference, and Results Reference Substance	methylsilanetriol in urine of treated fish.; 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	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means
Domain 2: Test Design			
Metric 3:	Study Controls	High	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:	Domoradzki, J. Y., Sushynski, J. M., Thackery, L. M., Springer, T. A., Ross, T. L., Woodburn, K. B., Durham, J. A., McNett, D. A. (2017). Metabolism of 14C-octamethylcyclotetrasiloxane ([14C]D4) or 14C-decamethylcyclopentasiloxane ([14C]D5) orally gavaged in rainbow trout (Oncorhynchus mykiss). Toxicology Letters 279(Suppl. 1):115-124.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833995

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	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	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There 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	The differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The lipid content or lipid normalized BCF was not reported for BCF studies, but these deficiencies or omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

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Study Citation:	Domoradzki, J. Y., Sushynski, J. M., Thackery, L. M., Springer, T. A., Ross, T. L., Woodburn, K. B., Durham, J. A., McNett, D. A. (2017). Metabolism of 14C-octamethylcyclotetrasiloxane ([14C]D4) or 14C-decamethylcyclopentasiloxane ([14C]D5) orally gavaged in rainbow trout (Oncorhynchus mykiss). Toxicology Letters 279(Suppl. 1):115-124.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833995

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

Study Citation:	Dow Chemical, (2021). Bioaccumulation assessment tool: Assessment of Cyclic Volatile Methylsiloxanes (cVMS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10706149

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	none; QSAR, calculation; other: Bioaccumulation Assessment Tool (BAT) v 1.9 – quantitative strength of evidence assessment
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: NA
Test Organism and Test Organism Details	various; D4 - In vivo dietary absorption and biotransformation used for BAT: Dietary absorption efficiency in fish 31% Half-life (rats) 9.7 days Half-life (rainbow trout) 6.7 days D4 - BCF used for BAT: Fathead minnow: 14800 Carp: 3360 Carp: 3160 Carp: 3870 Carp: 5230 D4 - BMF used for BAT: Rainbow trout: 0.868 Carp: 0.405 D4 - TMF used for BAT: 8 values ranging from 0.31 (Lake Pepin) to 1.16 (Dalian Bay)
Lipid Content, Test Temperature, pH, and Depuration Time	not applicable; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	not applicable; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	not applicable; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	not applicable; not applicable; not applicable
Test Type, Test Temperature, and Test Condition Comments	not applicable; not applicable; D4 - Physical and chemical properties used for BAT: molecular weight = 296.62 g/mol, water solubility= 0.056 mg/L, log KOW = 6.49, log KOA = 4.22, log KAW = 2.69
Duration, Parameter, and Sampling Frequency	not applicable; BCF, BMF, BAF; not applicable
Concentration	not applicable -
Analytical Method and Analytical Details	in silico inputs include pchem properties, in vivo laboratory bioaccumulation test results, and field in vivo bioaccumulation data; 60% of the values were categorized as 'not Bioaccumulative', 20% of the values were categorized as 'Bioaccumulative' and 20% were categorized as 'very Bioaccumulative.;
Rate Constant and Results per Recovery	not applicable; not applicable
Statistics, Basis, and Calculation Basis	not applicable; total lipid content,; kinetic (k), steady-state (SS), steady-state normalized by lipid content (SSL)
Results Value and Results Details	In silico BCF(k) estimates = 106,000 (generic lab invertebrate), 1,250 (generic lab fish). In silico BMF(k) estimates = 0.0616 (generic field low trophic level fish), 0.00669 (generic lab fish). In silico BCF(SS) estimates = 111,000 (generic lab invertebrate), 1,310 (generic lab fish). In silico BMF(SS) estimates = 0.0651 (generic field low trophic level fish), 0.00669 (generic lab fish). In silico BAF(SS) estimates = 8,730 (generic field low trophic level fish), 168,000 (generic field aquatic invertebrate), 106,000 (generic field benthic invertebrate). In silico BCF(SSL) estimates = 277,000 (generic lab invertebrate), 1,310 (generic lab fish). In silico BMF(SSL) estimates = 0.0294 (generic field low trophic level fish), 0.0237 (generic lab fish). In silico BAF(SSL) estimates = 8,730 (generic field low trophic level fish), 280,000 (generic field aquatic invertebrate), 266,000 (generic field benthic invertebrate).; BAT (Bioaccumulation Assessment Tool) in silico estimates for octamethylcyclotetrasiloxane (D4) were not considered reliable or relevant for use in the strength of evidence assessment for bioaccumulation potentials; results were considered invalid based on the chemical being outside the is silico BAT domain.
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.

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Study Citation:	Dow Chemical, (2021). Bioaccumulation assessment tool: Assessment of Cyclic Volatile Methylsiloxanes (cVMS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10706149

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to the study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	High	Standards species included in assessment.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limitations were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	Low	Chemical is outside the domain of the model; results may not be reliable.

Overall Quality Determination Medium

Study Citation:	Dow Chemical, (2022). 14C-Octamethylcyclotetrasiloxane (14C-D4) and 14C-Decamethylcyclopentasiloxane (14C-D5): Fish biotransformation and metabolite profile.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10706150

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; experimental; OECD Guideline 305 (Bioconcentration: Flow-through Fish Test) - [before 2 Oct 2012]: OECD 305 - fish biotransformation and metabolic profile
Solvent, Reactivity, Storage, Stability	carrier solvent: hexane; NR; stored in freezer at -20°C in original container; Not Reported
Radiolabel, Source, State, Purity	14C-octamethylcyclotetrasiloxane, specific activity = 185.2 mCi/mmol, 0.500 mCi/mL; Dow Chemical Company, Midland Michigan; stock solution prepared by TERC laboratory and shipped to Smithers Lab; Not Reported; 100% - non-GLP radiochemical purity by HPLC
Test Organism and Test Organism Details	juvenile rainbow trout (Oncorhynchus mykiss); target weight 20-30 g; Samples analyzed (4 fish at each time point): fish liver, carcass, intestinal contents; fish acclimated for 7 days prior to dosing
Lipid Content, Test Temperature, pH, and Depuration Time	Average lipid content reported on a wet weight basis = 3.21% and dry weight basis = 15.5%; 12 - 13°C; 7.0-7.1; routinely monitored; not specified
Media Type, TOC, and Salinity	laboratory well water; not specified; not specified
Dissolved Oxygen, Conductivity, and Hardness	>60% (91-120%); maintained with gentle aeration; 412-435 µs/cm; routinely monitored; total hardness 80-84 mg/L as CaCO3; routinely monitored
Exposure Route, Elimination, and Nominal Measurements	diet; single exposure daily at a rate of 1.25% body weight; unknown metabolites (found only in the intestine) could not be identified due to very low concentrations; measured (analytical results of treated feed averaged 75.8% of nominal)
Test Type, Test Temperature, and Test Condition Comments	flow-through; flow rates checked daily, ca. 420 mL/min.; 12 - 13°C; 16-hour light/8-hour dark photoperiods
Duration, Parameter, and Sampling Frequency	10-day feeding study; NA; samples collected on day 3 and 10
Concentration	4.5 (1.33) µmol/L per 1 gram of feed (g/kg)
Analytical Method and Analytical Details	HPLC-RAM and LSC; Samples extracted with THF and analyzed via HPLC-RAM (metabolic radiochemical profiles) and LSC (distribution and mass balance).;
Rate Constant and Results per Recovery	not reported; Majority of D4 recovered in carcass (97.5-98.3% at day 3; 98.4-99.5% at day 10), smaller amounts recovered in liver and intestinal contents. In carcass and liver samples 100% radioactivity was recovered as D4; in the intestinal content samples 27.9-100% recovered as D4 at day 3 and 56.6-100% at day 10, unknown metabolites (found only in the intestine) could not be identified due to very low concentrations.
Statistics, Basis, and Calculation Basis	not specified; not specified; NA
Results Value and Results Details	3 unidentified peaks (metabolites) were observed in the intestinal content samples, not observed in the carcass or liver samples; Not Reported
Metabolites, Reference, and Results Reference Substance	metabolites could not be determined due to low concentrations observed; 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 (stablished nomenclature, CASRN, and structure reported).
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported and purity verified by analytical means.
Domain 2: Test Design				

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Study Citation:	Dow Chemical, (2022). 14C-Octamethylcyclotetrasiloxane (14C-D4) and 14C-Decamethylcyclopentasiloxane (14C-D5): Fish biotransformation and metabolite profile.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10706150

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established; however, the system was appropriate for the test.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	There were differences between the assessment methodology and the intended outcome assessment; metabolites were not identified or quantified.
	Metric 12:	Test Substance Purity	High	The study reported the use of appropriate sampling methods.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No mortalities or adverse effects were observed during treatment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations and identities of transformation products were not elucidated.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Bioaccumulation results were not specified; results for metabolites not quantitative.
	Metric 18:	QSAR Models	N/A	The metric is not applicable.

Overall Quality Determination High

Study Citation:	Dow Corning, (1990). Body burden of octamethylcyclotetrasiloxane in Daphnia magna at incipient lethality.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5885396

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	Saturated in hardened dechlorinated water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; >99%
Test Organism and Test Organism Details	Daphnia magna; Substantial mortalities occurred within the first 24 hrs of the test
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°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	Water; Not reported; Measured: 24.8 - 30.5 ug/L (before exposure start); 50.8 ug/L (end of exposure)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 22±2°C; Flow rate: 12.5 mL/min in 1.7 L glass test chambers
Duration, Parameter, and Sampling Frequency	2/20/90 13:30 - 2/21/90 9:00; Not Reported; Once
Concentration	24.8 - 50.8 µg/L
Analytical Method and Analytical Details	GC/FID (daphnid solvent extract); purge-and-trap GC/MS (water samples); Daphnids underwent solvent extraction and sonification;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Not specified; steady state
Results Value and Results Details	Accumulation factor=40,000; Daphnid: 2040 ug/g; 6.9 umol/g
Metabolites, Reference, and Results Reference Substance	Not reported; Blank (distilled water: 0.86 ug/L); Not detected in unexposed daphnia

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 but not source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Blank controls were included and the test substance was not detected in the control organisms.
Metric 4:	Test Substance Stability	Medium	Test substance preparation but not storage was reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Many test conditions were not reported.

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Study Citation:	Dow Corning, (1990). Body burden of octamethylcyclotetrasiloxane in Daphnia magna at incipient lethality.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5885396

		EVALUATION	
Domain	Metric	Rating	Comments
	Metric 7: Testing Consistency	High	Test conditions were consistent throughout the duration of the experiment.
	Metric 8: System Type and Design	Medium	Equilibrium was established and the system maintained test substance concentrations. No depuration was carried out.
Domain 4: Test Organisms			
	Metric 9: Outcome Assessment Methodology	Low	Substantial deaths occurred under the study conditions.
	Metric 10: Sampling Methods	Medium	The test organism species was reported; body weight, life stage, or lipid content were not 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	The sampling methods were appropriate and frequency was acceptable.
Domain 6: Confounding/Variable Control			
	Metric 13: Confounding Variables	Medium	The study was lacking in experimental details.
	Metric 14: Health Outcomes Unrelated to Exposure	Medium	Substantial mortalities occurred in the first 24 hr of exposure.
Domain 7: Data Presentation and Analysis			
	Metric 15: Data Reporting	Medium	The analytical methods were appropriate; Extraction efficiency and limits of detection were not reported. Raw data was reported. Lipid normalized BCF values were not reported.
	Metric 16: Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not performed.
Domain 8: Other			
	Metric 17: Verification or Plausibility of Results	Medium	The results were reasonable based on the method but many study details were not reported and results were not compared to previous studies.
	Metric 18: QSAR Models	N/A	Not applicable.

Overall Quality Determination Medium

Study Citation:	Dow Corning, (1984). Bioconcentration of octamethylcyclotetrasiloxane in fish, with cover letter dated 4/20/94.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5888380

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	Charcoal-filtered municipal water; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Pimephales promelas; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; 4 d (after day 10)
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; Fish transferred to water; Nominal
Test Type, Test Temperature, and Test Condition Comments	other; Not reported; Resaturation system
Duration, Parameter, and Sampling Frequency	10 days exposure; Not Reported; 0, 1, 3, 7, 10, 11, 12, and 14 d
Concentration	0.48 - 4.8 mg/L
Analytical Method and Analytical Details	GC analysis; Water samples acidified with HCl, agitated overnight; Fish sampled processed similarly but agitated for 4-5 days and filtered through activated coconut charcoal.;
Rate Constant and Results per Recovery	k1=8.65 /hr (uptake); k2=0.0092 /hr (depuration); Not reported
Statistics, Basis, and Calculation Basis	Not reported; Not reported; other
Results Value and Results Details	BCF=1200 (steady state) and 940 (kinetic, k1/k2); Clearance initially rapid followed by slower clearance; first-order two compartment model: 16.8 hr (shallow compartment) and 120 hr (deep compartment)
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	N/A	The test substance source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Blanks were included but the results were not reported.
Metric 4:	Test Substance Stability	Medium	Test substance preparation but not storage 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:	Dow Corning, (1984). Bioconcentration of octamethylcyclotetrasiloxane in fish, with cover letter dated 4/20/94.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5888380

EVALUATION

Domain	Metric		Rating	Comments
	Metric 6:	Testing Conditions	Medium	Many testing conditions (temperature, water characteristics) were not reported.
	Metric 7:	Testing Consistency	High	Test set up was consistent across replicates.
	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	Not applicable.
	Metric 10:	Sampling Methods	Medium	Test organism species was reported, no other details were provided.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No effects to organism health were reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate but extraction efficiency and limits of detection were not reported. Data was reported graphically only and on a logarithmic scale.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method although some study details were not reported.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (1993). A 16 day aquatic toxicity test of octamethylcyclotetrasiloxane in fathead minnows under flow through conditions at 12 degrees c and with cover letter dated 081693.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5895957

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; bioconcentration in fathead minnows
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Dow Corning Corporation; NR; >99.9% (GC/MS)
Test Organism and Test Organism Details	Fathead minnows, Pimephales promelas; n=10
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 12±2°C; 6.15 - 6.36; Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	7.5 - 9.1 mg/L; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Measured; 40 - 60% water solubility
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12±2°C; Dechlorinated municipal water saturated with the test substance at a flow-rate of 12 mL/min
Duration, Parameter, and Sampling Frequency	16 days; Not Reported; Once
Concentration	30±10 µg/L
Analytical Method and Analytical Details	GC analysis; Fish samples hexane extracted by sonication; water samples hexane extracted;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body; steady state
Results Value and Results Details	BCF=3,000 - 13,000; Fish concentration: 250±108 ppm
Metabolites, Reference, and Results Reference Substance	Not Reported; Control animals; Not detected

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Control fish were included and the test substance was not detected in the organisms.
	Metric 4:	Test Substance Stability	Medium	General test substance preparation details were reported, 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	Appropriate test conditions and water characteristics were reported.

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Study Citation:	Dow Corning, (1993). A 16 day aquatic toxicity test of octamethylcyclotetrasiloxane in fathead minnows under flow through conditions at 12 degrees c and with cover letter dated 081693.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5895957

		EVALUATION		
Domain		Metric	Rating	Comments
	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 test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The organism species was reported; length and body weight at the end of the study were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	No mortality or adverse health outcomes were observed during the study.
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 for fish body concentrations were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Dow Corning, (1992). An 18-day aquatic toxicity test of octamethylcyclotetrasiloxane in rainbow trout of different size under flow-through saturated conditions (final report) w-attach & letter 042392.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5896903

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Dow Corning Corporation; Clear liquid; >99.9%
Test Organism and Test Organism Details	Rainbow trout, Oncorhynchus mykiss; Small (~ 1 g) and larger (~ 5 g) used in separate experiments
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 10. 2 - 12.6°C; 6.09 - 7.10; Not reported
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	5.9 - 13.0 mg/L; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not reported; Measured: 23.2±8 ppb (small trout), 31.2±10.2 ppb (larger trout)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 10. 2 - 12.6°C; Flow rate 12 mL/min
Duration, Parameter, and Sampling Frequency	18 days; Not Reported; 5, 7, 8, 12, and 15 days (small fish only); 18 days
Concentration	23.2 - 31.2 ppb
Analytical Method and Analytical Details	GC; Fish and water samples extracted with n-pentane;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Not reported; other
Results Value and Results Details	BCF=5000 - 15000; Detected in small fish (18d): 223000 - 401000 ppb Detected in larger fish: 149000 - 451000 ppb
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The test substance source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Control fish were included and the test substance was not detected in the organisms.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation was reported generally, 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	Appropriate testing conditions and water characteristics were reported.

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Study Citation:	Dow Corning, (1992). An 18-day aquatic toxicity test of octamethylcyclotetrasiloxane in rainbow trout of different size under flow-through saturated conditions (final report) w-attach & letter 042392.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5896903

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across all samples and study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Test organism species and approximate weights were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and samples were collected at an acceptable frequency.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	High mortality occurred as this was a combination toxicity study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate; extraction efficiencies or limits of detection were not reported. Raw data was reported. Lipid content or lipid normalized values 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	High	The results were reasonable based on the method. Accumulation for live fish only was reported by the reviewer.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Dow Corning, (1985). Letter from Dow Corning Corp to US EPA regarding the significance of RB annelin bioconcentration study with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5900594

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Fish bioconcentration
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Fish, species NR; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; 4 days
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	Not reported; Not reported; Measured: 0.01 - 0.09 (low); 0.06 - 0.25 ug/gm (high)
Test Type, Test Temperature, and Test Condition Comments	static; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	10 days; Not Reported; 1, 3, 7, and 10 days
Concentration	0.01 - 0.25 ug/gm
Analytical Method and Analytical Details	Hewlett Packard 5840A GC; Tissue samples digested by sonification with H2O; samples blank-corrected.;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Tissue; steady state
Results Value and Results Details	BCF=83 / 1d, 770 / 3d, 1340 / 7d, 1350 / 10d (low exposure); Fish concentration: 7.5 - 13.5 ug/gm (low), 19.0 - 41.9 ug/gm (high); BCFs not calculated for high dose group. Depuration: 2.5 ug/gm fish / 4d (low), 15.1 ug/gm fish / 4 d (high)
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Samples were blank corrected.
Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage were not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Limited test method details were provided.
Metric 6:	Testing Conditions	Low	Limited test conditions were provided.

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Study Citation:	Dow Corning, (1985). Letter from Dow Corning Corp to US EPA regarding the significance of RB annelin bioconcentration study with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5900594

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test set-up was presumably consistent across study groups.
	Metric 8:	System Type and Design	Medium	Test system not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Medium	Test organism reported as fish, no other details included.
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 frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Little to no study method details were reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health outcomes were generally reported as having ”no apparent ill effects”.
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 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	Little to no study method details were reported, making verification of the plausibility of the results. BCFs were not calculated for the high exposure, possibly due to the wide range of measured water concentrations, but this was not explained in the study.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination Medium

Study Citation:	Dow Corning, (1985). Letter from Dow Corning Corp to US EPA regarding the significance of RB annelin bioconcentration study with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5900594

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Continuous resaturation fish bioconcentration study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Fish, species NR; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	not specified; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Measured: 0.149, 0.138, 0.061, 0.032, 0.133, 0.0482±0.010, 0.048±0.002, and 0.028 ppm on days 0, 1, 2, 3, 6, 8, 10, 14 d; overall average: 0.084 ±0.050 ppm
Test Type, Test Temperature, and Test Condition Comments	static; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	14 days; Not Reported; 0, 1, 2, 3, 6, 8, 10, and 14 d
Concentration	0.01 - 0.25 ug/gm
Analytical Method and Analytical Details	Hewlett Packard 5840A GC; Tissue samples digested by sonification with H2O; samples blank-corrected.;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Tissue, wet wt.; steady state
Results Value and Results Details	BCF=193, 1650, 433, 1963, 3813, and 12107 based on daily concentration; 318, 628, 686, 1916, 2178, and 4035 based on average water concentration; Reported for days 0, 1, 2, 3, 6, 8, 10, and 14, respectively; Fish concentration: 26.7 - 339 ppm
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Samples were blank corrected.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation and storage were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Limited test method details were provided.
	Metric 6:	Testing Conditions	Low	Limited test conditions were provided.
	Metric 7:	Testing Consistency	High	Test set-up was presumably consistent across study groups.
	Metric 8:	System Type and Design	Medium	Test system not reported.

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Study Citation:	Dow Corning, (1985). Letter from Dow Corning Corp to US EPA regarding the significance of RB annelin bioconcentration study with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5900594

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
Metric 10:	Sampling Methods	Medium	Test organism reported as fish, no other details included.
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 frequency was acceptable.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Low	Little to no study method details were reported.
Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health outcomes were generally reported as having ”no apparent ill effects”.
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 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	Little to no study method details were reported, making verification of the plausibility of the results.
Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Dow Corning, (1990). Letter from Dow Corning to US EPA regarding 14-day aquatic toxicity test with rainbow trout with octamethylcyclotetrasiloxane under flow-through conditions... with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5901767

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation/toxicity study at two temperatures.
Solvent, Reactivity, Storage, Stability	Aqueous; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; >99% Notes: 50 ppb solubility in water
Test Organism and Test Organism Details	Oncorhynchus mykiss (young rainbow trout); 100 - 300 mg; not fed for at least 24 hrs prior to the start of the test
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 12 and 17°C; 7.06 - 7.09 (12°C); 7.13 - 7.21 (17°C); Not applicable
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	9.5 - 10.0 mg/L (12°C); 6.7 - 9.0 (17°C); Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Water; Not applicable; Measured pre-exposure: 31.2 ppb (12°C); 26.7 - 30.0 ppb (17°C); Measured during exposure: < 15 ppb - 55 ppb (12°C); 17.9 - 20.3 ppb (17°C)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12 and 17°C; Flow rate: 12.5 mL/min (nominal)
Duration, Parameter, and Sampling Frequency	9 days (at 12°C); 5 days (at 17°C); all organisms dead by study end; Not Reported; days 4 and 5 (both temperatures), 8 and 9 (12°C only)
Concentration	26.7 - 31.2 ppb
Analytical Method and Analytical Details	Purge-and-trap GC/MS or GC/FID (solvent extracts); Fish extracted with acetone and distilled water by sonication.;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; Whole body, wet wt.; steady state
Results Value and Results Details	BCF=ND / 4d, 1930 /5d, 7340 /8d, 4390 /9d (12°C); 2300 /4d, 2290 - 2530 /5d (17°C); BCF calculated by reviewer based on measured pre-exposure water concentrations. Fish concentrations: ND, 229, and 137 ug/gm ww (12°C); 65.2, 65.0 - 71.8 ug/gm ww (17°C)
Metabolites, Reference, and Results Reference Substance	Not Reported; Control fish; Not detected

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	Control fish were included and the test substance was not detected.
Metric 4:	Test Substance Stability	High	The test substance preparation was reported and was within the solubility limit.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.

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Study Citation:	Dow Corning, (1990). Letter from Dow Corning to US EPA regarding 14-day aquatic toxicity test with rainbow trout with octamethylcyclotetrasiloxane under flow-through conditions... with attachments.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5901767

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate testing conditions (temperature, pH, DO) were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	The system was capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	Medium	All organisms were dead by the end of the study.
	Metric 10:	Sampling Methods	High	The test organism species and weight were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The study focus was on toxicity and all fish were dead by the end of the study. It is not clear how this impacts study result interpretation.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	All organisms were dead by the end of the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical methods were appropriate; limits of detection and extraction efficiency were not reported. Raw data was reported. BCF was calculated by the reviewer. Lipid content and lipid normalized values were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The results were not compared to other studies and no fish survived the end of the study.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Trophic magnification in the Oslofjord, Norway
Solvent, Reactivity, Storage, Stability	NA; NR; Stored in the dark at -18°C; NR
Radiolabel, Source, State, Purity	NA; Oslofjord field samples; NA; NA
Test Organism and Test Organism Details	Worms, sea urchin, mussels, northern shrimp, Atlantic cod, European whiting, haddock, poor cod, European plaice, long rough dab, common sole, Vahl's eelpout; n=3, 4, 10, 12, 13, 6, 16, 6, 11, 12, 6, and 6, respectively
Lipid Content, Test Temperature, pH, and Depuration Time	0.32%, 0.32%, 0.76 - 1.38%, 3.01-3.30%, 2.31-2.63%, 1.25%, 3.64-4.68%, 2.73%, 2.59-4.97%, 2.40%, 5.72%, 1.03% ww, respectively; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediments; Not applicable; Sediment: 0.3-0.8 ng/g ww (0-1 cm), 0-0.9 ng/g ww (1-2 cm)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Food chain determined based on delta 13C signatures and trophic level determined based on delta 15N signatures
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 12 - 14 November 2008
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Samples processed and analyzed by two independent laboratories by different methods. MDL: 0.41 - 3.7 ng/g ww (sediment), 0.33 ng/g ww (mussels), 0.21 - 3.3 ng/g ww (shrimp), 0.38 - 1.5 ng/g ww (fish);
Rate Constant and Results per Recovery	Not applicable; Not determined.
Statistics, Basis, and Calculation Basis	Significant difference and variability tests (paired t-test, ANOVA); linear regression analysis to determine relation to lipid content; Whole body homogenates, individual or pooled; other
Results Value and Results Details	Trophic Magnification Value=0.6 (inner fjord), 0.5 (outer fjord); TMF=e^m where m=slope of the regression line of the natural log concentration (lipid normalized) on trophic level. Lipid-equivalent concentrations were generally inversely related to trophic position. TMFs less than 1.0 indicate high probability biomagnification did not occur.
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 field sample sources were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included in analysis.
	Metric 4:	Test Substance Stability	High	Field sample storage was reported and appropriate.

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Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

		EVALUATION		
Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No field conditions were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	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 trophic magnification.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and applied appropriately.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was not reported. Raw data was reported. Limits of detection were reported and acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and agreement between inner and outer fjord TMFs suggests the test substance does not biomagnify.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Cod-herring biomagnification in the Oslofjord, Norway
Solvent, Reactivity, Storage, Stability	NA; NR; Stored in the dark at -18°C; NR
Radiolabel, Source, State, Purity	NA; Oslofjord field samples; NA; NA
Test Organism and Test Organism Details	Atlantic cod, Atlantic herring; n=13 and 6
Lipid Content, Test Temperature, pH, and Depuration Time	2.31-2.63% and 8.83% ww; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediments; Not applicable; Sediment: 0.3-0.8 ng/g ww (0-1 cm), 0-0.9 ng/g ww (1-2 cm)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Food chain determined based on delta 13C signatures and trophic level determined based on delta 15N signatures
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 12 - 14 November 2008
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Samples processed and analyzed by two independent laboratories by different methods. MDL: 0.41 - 3.7 ng/g ww (sediment), 0.38 - 1.5 ng/g ww (fish);
Rate Constant and Results per Recovery	Not applicable; Not determined.
Statistics, Basis, and Calculation Basis	Significant difference and variability tests (paired t-test, ANOVA); linear regression analysis to determine relation to lipid content; Whole body homogenates, individual or pooled; other
Results Value and Results Details	Biomagnification Value=1.0 (inner fjord); BMF=[predator]/[prey]; 39% probability BMF $>$ 1.0
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 field sample sources were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included in analysis.
	Metric 4:	Test Substance Stability	High	Field sample storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No field conditions were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining trophic magnification.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and applied appropriately.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was not reported. Raw data was reported. Limits of detection were reported and acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and agreement between inner and outer fjord TMFs suggests the test substance does not biomagnify.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination **High**

Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Cod-shrimp biomagnification in the Oslofjord, Norway
Solvent, Reactivity, Storage, Stability	NA; NR; Stored in the dark at -18°C; NR
Radiolabel, Source, State, Purity	NA; Oslofjord field samples; NA; NA
Test Organism and Test Organism Details	Atlantic cod and Northern shrimp; n=13 and 12
Lipid Content, Test Temperature, pH, and Depuration Time	2.31-2.63% and 3.01-3.30% ww; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediments; Not applicable; Sediment: 0.3-0.8 ng/g ww (0-1 cm), 0-0.9 ng/g ww (1-2 cm)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Food chain determined based on delta 13C signatures and trophic level determined based on delta 15N signatures
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 12 - 14 November 2008
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Samples processed and analyzed by two independent laboratories by different methods. MDL: 0.41 - 3.7 ng/g ww (sediment), 0.21 - 3.3 ng/g ww (shrimp), 0.38 - 1.5 ng/g ww (fish);
Rate Constant and Results per Recovery	Not applicable; Not determined.
Statistics, Basis, and Calculation Basis	Significant difference and variability tests (paired t-test, ANOVA); linear regression analysis to determine relation to lipid content; Whole body homogenates, individual or pooled; other
Results Value and Results Details	Biomagnification Value=1.0 (inner fjord), 1.4 (outer fjord); MF=[predator]/[prey]; 37-55% probability BMF $>$ 1.0
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 field sample sources were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included in analysis.
	Metric 4:	Test Substance Stability	High	Field sample storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	No field conditions were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	Dow Corning, (2010). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxane (cVMS) materials in the aquatic marine food webs of the inner and outer Oslofjord, Norway.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6994446

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining trophic magnification.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and applied appropriately.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No significant sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was not reported. Raw data was reported. Limits of detection were reported and acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and agreement between inner and outer fjord TMFs suggests the test substance does not biomagnify.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Dow Corning, (2009). Preliminary assessment of cyclic volatile methylsiloxane (cVMS) materials in surface sediments, cores, zooplankton, and fish of Lake Opeongo, Ontario, Canada.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7307359

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; experimental; other: non-guideline: field study analysis of food web Trophic Magnification Factor (TMF) and Biomagnification Factor (BMF)
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; samples from Lake Opeongo; NR; NR Notes: NR
Test Organism and Test Organism Details	bulk zooplankton (trophic level TL 2.0) and fish (yellow perch TL 3.1, cisco TL 3.0, lake trout TL 3.7); Lake Opeongo
Lipid Content, Test Temperature, pH, and Depuration Time	zooplankton 4.00% ww, Cisco 4.84±0.67% ww, Yellow perch 4.15±0.19% ww, lake trout 7.78±0.51% ww; ambient; not reported; not applicable
Media Type, TOC, and Salinity	natural water / surface sediment; 1.11±0.06%ww; not reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	environment; not reported; Measured species concentrations (ng/g lipid): Yellow perch = 21.0±1.4, Cisco 25.6±1.4, Lake trout 48.7±7.4, zooplankton 10.9±1.1, sediment 34.4±5.8
Test Type, Test Temperature, and Test Condition Comments	field study; ambient; concentrations measured across all sample matrices ranged from (ng/g lipid) 10.9-48.7
Duration, Parameter, and Sampling Frequency	not applicable; Not Reported; samples collected in October 2007
Concentration	ca. 10.9 - ca. 48.7 ng/g lipid
Analytical Method and Analytical Details	Analyte quantification in zooplankton and fish via HPLC, and in sediments via GC-MS; Sediment analysis via carbon coulometry; lipid content determined gravimetrically, and stable isotope analysis in fish via elemental analyzer; MDL across all matrices ranged from 0.47 to 0.90 ng/g ww; LOQ = 1.18-2.25;
Rate Constant and Results per Recovery	not reported; mean recovery across all matrices (±95% Cl) = 97.9±1.9% with a range of 80.4-103%
Statistics, Basis, and Calculation Basis	RSL = 9.3% (range 0.5-21.9%); whole body; steady state
Results Value and Results Details	Mean trout-cisco BMF = 1.9 (95% Cl: 1.3-2.7); trout-perch = 2.4 (95% Cl: 1.6-3.3); Not Reported
Metabolites, Reference, and Results Reference Substance	not reported; reference and control samples included; background contamination on reagent blanks could not be eliminated and was taken into account in the MDLs

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 of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were included.
	Metric 4:	Test Substance Stability	High	Sample preparation, and storage conditions were reported.
Domain 3: Test Conditions				

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Study Citation:	Dow Corning, (2009). Preliminary assessment of cyclic volatile methylsiloxane (cVMS) materials in surface sediments, cores, zooplankton, and fish of Lake Opeongo, Ontario, Canada.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7307359

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in reporting of field characteristics.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	Field study; equilibrium assumed.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Field study; food web trophic levels 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	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	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:	EC/HC, (2008). Screening assessment for the challenge: Octamethylcyclotetrasiloxane (D4): CASRN 556-67-2.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6993847

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; 14C-octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; other: flow-through dietary bioaccumulation study.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C; HR; NR; 99.1%
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; 42 days
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	dietary 457 ug/g of chow at a feeding rate of 3% wet body weight/day; not reported; not reported
Test Type, Test Temperature, and Test Condition Comments	flow-through; not reported; Not Reported
Duration, Parameter, and Sampling Frequency	77 days; BMF (lipid-normalized); 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	0.75; BMF (lipid-normalized) of 0.62 was extrapolated to an uptake of 57 days when steady-state was expected.
Metabolites, Reference, and Results Reference Substance	extracted radioactivity from fish was identified as parent D4 indicating no metabolites.; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The test substance source was not reported but may be available in the cited reference. Purity was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Control data were not reported but may be available in the cited reference.
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:	EC/HC, (2008). Screening assessment for the challenge: Octamethylcyclotetrasiloxane (D4): CASRN 556-67-2.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6993847

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	There were reported deviations or omissions in testing conditions; however, the data may be available in the cited reference.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these may be available in the cited reference.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	Medium	The species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these may be available in the cited reference.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the data may be available in the cited reference.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were no adverse effects were observed throughout the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The lipid content or the lipid-normalized bioconcentration factor (BCF) was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	No statistical analyses were conducted; however, this data may be available in the cited reference.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination Medium

* Related References: Cites: Drottar K. 2007. 14C-octamethylcyclotetrasiloxane (14C-D4): dietary bioaccumulation in the rainbow trout (Oncorhynchus mykiss) under flow-through conditions. Dow Corning Report No. 2007-I0000-57314.

Study Citation:	Evonik Goldschmidt GmbH, (2009). Measurements of food-web related data on cVMS distribution in environmental samples collected in Oslo Fjord.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7307354

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	No; experimental; other: Field study
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; Field study; NA; reference material 99.8% purity
Test Organism and Test Organism Details	Shrimp; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	2.0-2.2 inner and 1.7-1.8 outer Oslo Fjord; NA; NR; NR
Media Type, TOC, and Salinity	natural sediment - marine; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	sediment; NA; NA
Test Type, Test Temperature, and Test Condition Comments	monitoring data; NA; Oslo Fjord
Duration, Parameter, and Sampling Frequency	NA; BSAF; Once
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; internal standards in pentane, 13C-D4, 13C-D5, and 13C-D6 and an equal concentration of 3C-D4, 13C-D5 and 13C-D6;
Rate Constant and Results per Recovery	NA; NR
Statistics, Basis, and Calculation Basis	Not Reported; whole body d.w.; Concentration in sediment/concentration in shrimp
Results Value and Results Details	BSAF = 2.6 and 1.2 in outer and inner Oslo Ford, respectively (calculated by SRC); D4 = 0.3 ng/g in whole body from outer Oslo Fjord and 2.5, 2.6 and 2.9 ng/g in inner Oslo Fjord (average 2.7). D4= -1.15 to 2.39 (average = 0.782) ng/g/dw in outer Oslo Fjord and 0.86-5.07 (average = 3.27) in inner Oslo Fjord.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	Medium	The test substance source was not reported and purity were verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance

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Study Citation:	Evonik Goldschmidt GmbH, (2009). Measurements of food-web related data on cVMS distribution in environmental samples collected in Oslo Fjord.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7307354

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Fackler, P. H., Dionne, E., Hartley, D. A., Hamelink, J. L. (1995). Bioconcentration by fish of a highly volatile silicone compound in a totally enclosed aquatic exposure system. Environmental Toxicology and Chemistry 14(10):1649.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834211

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; [14C]octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; other: bioconcentration
Solvent, Reactivity, Storage, Stability	acetone; NR; refrigerated; Not Reported
Radiolabel, Source, State, Purity	17.1 mCi/mmol; Sigma Chemical Co. (St. Louis, MO); NR; >98% Notes: OMCTS; lot 079F9233
Test Organism and Test Organism Details	fathead minnows (Pimephales promelas); immature ($\leq$ 6 months old); mean (standard deviation) total length 35 ($\pm$2) mm and blotted wet weight 0.48 ($\pm$0.09) g.
Lipid Content, Test Temperature, pH, and Depuration Time	6.4% w/w; 21-22°C; 6.9-7.2; 14 days
Media Type, TOC, and Salinity	natural water - freshwater; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	72-87% of saturation; 130 umho/cm; hardness: 32-34 mg/L CaCO3; alkalinity: 22-24 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	whole body; Not Reported; nominal
Test Type, Test Temperature, and Test Condition Comments	flow-through; 21-22°C; 16:8 hour light: dark photoperiod
Duration, Parameter, and Sampling Frequency	42 days; BCF; day 1, 3, 7, 10, 14, 18, 22, 28 uptake; day 1, 3, 7, 12, 14 of depuration.
Concentration	0.50 ug/L
Analytical Method and Analytical Details	LSC; HPLC; mean recovery of 107$\pm$3.41% for water analysis and 102$\pm$4.27% for combusted samples.;
Rate Constant and Results per Recovery	uptake: k=2450/d; depuration: k=0.183/d; 97.2-103% oxidizer recovery rate
Statistics, Basis, and Calculation Basis	95% C.I. of the BCF was calculated to be 9,380-16,100.; whole body ww; steady state
Results Value and Results Details	12,400; lipid based BCF 194,000. the predicted time to 95% depuration was 16 days.
Metabolites, Reference, and Results Reference Substance	no metabolites detected; solvent control vessel; no 14C residues were measured in solvent control fish.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and structure.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent controls were included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported, and were appropriate for the study.
Domain 3: Test Conditions				

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Study Citation:	Fackler, P. H., Dionne, E., Hartley, D. A., Hamelink, J. L. (1995). Bioconcentration by fish of a highly volatile silicone compound in a totally enclosed aquatic exposure system. Environmental Toxicology and Chemistry 14(10):1649.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834211

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	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	High	Test organism information was reported, including species or sex, age, and starting body weight.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported and the lipid content or the lipid-normalized bioconcentration factor (BCF) was reported for BCF studies.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were expected.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Gobas, F. A. P.,C, Lee, Y. S. (2019). Growth-correcting the bioconcentration factor and biomagnification factor in bioaccumulation assessments. Environmental Toxicology and Chemistry 38(9):2065-2072.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002425

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	no; calculation; other: growth-correcting BCFs and BMFs
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); growth rate constant: uptake: 0.0383/d; depuration: 0.0279/d
Lipid Content, Test Temperature, pH, and Depuration Time	Fish: 6.32% (±1.52 SD); feed: 14.8% (±0.1 SD); not reported; not reported; 42 days
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	feed: 457±19.4 mg/kg at a rate of 0.03 kg food/kg fish/d; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; not reported; compilation of reported feeding rates (FD) and growth dilution rate constants (kg) in OECD-305-style dietary bioaccumulation tests in juvenile rainbow trout (Oncorhynchus mykiss)
Duration, Parameter, and Sampling Frequency	77 days; BCF L/kg fish; not reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	uptake: 395 L/kg/d; depuration: 0.0432/d; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	9144; using OECD growth correction in the same study with nongrowing fish gives BCF of 29,500 L/kg fish.
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	Low	There were some uncertainties regarding test data for the substance throughout the citation.
	Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the data may be retrievable from the cited source.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to the study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, the data may be retrievable from the cited source.

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Study Citation:	Gobas, F. A. P.,C, Lee, Y. S. (2019). Growth-correcting the bioconcentration factor and biomagnification factor in bioaccumulation assessments. Environmental Toxicology and Chemistry 38(9):2065-2072.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002425

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, the data may be retrievable from the cited source.
	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 the study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study results.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to 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	Low	There was uncertainty in the data used to preform the calculations for the ending results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study results.

Overall Quality Determination Medium

Study Citation:	Guo, W. J., Dai, Y., Chu, X. T., Cui, S., Sun, Y. Q., Li, Y. F., Jia, H. L. (2021). Assessment bioaccumulation factor (BAF) of methyl siloxanes in crucian carp (Carassius auratus) around a siloxane production factory. Ecotoxicology and Environmental Safety 213:111983.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077622

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	No; Experimental; other: Not specified; concentrations in monitoring samples evaluated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Crucian carp; 49 carp, average size: 15.6 +/- 2.3 cm
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	Other: river water near methyl siloxane production factory; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; Average water concentration: 2.0 +/- 0.76 ng/L; Average biota concentration: 13 +/- 6.9 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	NR; Not Reported; NR
Duration, Parameter, and Sampling Frequency	Not specified; BAF; One time; water and carp samples collected from 7 sites in a river
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	Thermo Trace gas chromatograph (Thermo TRACE 2000) couples with PolarisQ mass spectrometer; Water samples were filtered and extracted with DCM; fish samples were extracted with hexane/ethyl acetate (1:1 v/v) using an oscillator and then centrifuged at a forge of 1000 g; Method detection limit (MDL) 1.5 ng/L (water), 2.4 ng/g (biota) (from supporting information);
Rate Constant and Results per Recovery	NR; 83-103%
Statistics, Basis, and Calculation Basis	NR; wet weight of samples obtained from back muscles; NR; steady state assumed for monitoring samples
Results Value and Results Details	Mean: 5900 L/kg; SD: 3500 L/kg; Min: 1100 L/kg; Max: 14000 L/kg; BAF values were calculated only when the concentrations were both above MDL in crucian carp and corresponding dissolved water.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	Medium	Test material was identified only by trade name.
	Metric 2:	Test Substance Purity	Medium	Test substance purity was not reported; possibly available in a cited source.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some control group details were not included; however, the lack of data was not likely to have a substantial impact on study results.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.

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Study Citation:	Guo, W. J., Dai, Y., Chu, X. T., Cui, S., Sun, Y. Q., Li, Y. F., Jia, H. L. (2021). Assessment bioaccumulation factor (BAF) of methyl siloxanes in crucian carp (Carassius auratus) around a siloxane production factory. Ecotoxicology and Environmental Safety 213:111983.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077622

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were included.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	Sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was suitable; however, some details were omitted (lipid content).
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods or kinetic calculations were clearly described; however, some data were not provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

Study Citation:	He, Y., Su, S., Cheng, J., Tang, Z., Ren, S., Lyu, Y. (2021). Bioaccumulation and trophodynamics of cyclic methylsiloxanes in the food web of a large subtropical lake in China. Journal of Hazardous Materials 413:125354.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7330044

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	no; experimental; other: Not specified; field study
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	J&K Scientific Co. Ltd. (Beijing, China) (from Supporting information); Not reported; Not reported; >98% (from supporting information) Notes: Not reported
Test Organism and Test Organism Details	Yellowcheek carp, Snakehead, Black carp, Banded catfish, Loach, Lake anchovy, Xenocrypris, Salangid, Shrimp, Silver carp, Bream, Carp, Bighead, Crucian carp, Topmouth culter, Phytoplankton; Yellowcheek carp (length: 76 cm, weight:4.4 kg), Snakehead (length: 27 cm, weight: 4.50 kg), Black carp (length: 55 cm, weight: 4.05 kg), Xenocypris (length: 22.00 cm, weight: 0.15 kg), Silver carp (length: 39.50 +/- 7.33 cm, weight: 1.24 +/- 0.64 kg), Bream (length:22.00 cm, weight: 0.15 kg), Carp (length: 34.60 +/- 1.11 cm, weight: 0.96 +/- 0.08 kg), Bighead (length: 31.63 +/- 1.65 cm, weight: 0.65 +/- 0.13 kg), Crucian carp (length: 23.17 +/- 1.04 cm, weight: 0.27 +/- 0.08), Topmouth cutler (length: 29.08 +/- 3.22 cm, weight 0.28 +/- 0.13 kg); mean ±standard deviation reported
Lipid Content, Test Temperature, pH, and Depuration Time	4.20, 3.60, 7.50, 4.10, 6.10, 3.30, 9.40, 3.50, 1.30, 3.50, 2.80, 3.10, 2.80, 2.60, 2.00%, respectively; NR; NR; Not applicable
Media Type, TOC, and Salinity	Not applicable; biota were sampled from lake water; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; Concentration in all samples: 0.945 +/- 0.851 ng/g dry weight
Test Type, Test Temperature, and Test Condition Comments	calculation of TMFs assumed that the sample organisms were at a steady-state in the lake ecosystem; NR; NR
Duration, Parameter, and Sampling Frequency	Not applicable; TMF; Not reported
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	gas chromatography/mass spectrometry (GC7890/MS5975, Agilent Technologies, Santa Clara, California, USA); Methylsilocanes were extracted with an ultrasonic bath. low concentrations of D3–D6 were detected in procedural blanks.;
Rate Constant and Results per Recovery	NR; 73.7-94.0%
Statistics, Basis, and Calculation Basis	LOQ: 0.38 mg/g dry weight; NR; lipid-normalized concentrations were not used in TMF calculations; Frequency distribution of TMFs by Monte Carlo simulation (n = 10,000)
Results Value and Results Details	Mean TMF: 1.11; TMF was assessed as the slope of the logarithmic transformation concentration of D4 in fish muscle regressed against trophic levels.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

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

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Study Citation:	He, Y., Su, S., Cheng, J., Tang, Z., Ren, S., Lyu, Y. (2021). Bioaccumulation and trophodynamics of cyclic methylsiloxanes in the food web of a large subtropical lake in China. Journal of Hazardous Materials 413:125354.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7330044

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	N/A	Metric not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Metric not applicable.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Hong, W. J., Jia, H., Liu, C., Zhang, Z., Sun, Y., Li, Y. F. (2014). Distribution, source, fate and bioaccumulation of methyl siloxanes in marine environment. Environmental Pollution 191:175-181.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6835730

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Bioaccumulation field study
Solvent, Reactivity, Storage, Stability	NA; NR; Glass bottles with Teflon lined caps, stored at -20°C; NR
Radiolabel, Source, State, Purity	NA; Sediment, surface seawater, and organism samples collected from 29 marine sites around Dalian, northeast China; NA; NA Notes: Analytical standard obtained from Tokyo Chemical Industry (Wellesley Hills, MA, USA)
Test Organism and Test Organism Details	Hexagrammos otakii; n=6, bottom dwelling fish
Lipid Content, Test Temperature, pH, and Depuration Time	Range 0.0115 - 0.0582 (g lipid/g organism); Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment: marine; 0.0286±0.00663 (g organic carbon/g dry weight); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment/water; Not applicable; Measured: average 0.671±0.462 ng/g dw, detection frequency 30% (sediment); average 6.93±9.48 ng/L detection frequency 10% (water)
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Samples collected from marine sites around Dalian, northeast China
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; Samples collected September 2010 (sediment) and July 2011 (seawater and organism)
Concentration	less than LOD - 1.81 ng/g dw
Analytical Method and Analytical Details	GC-MS, electron impact ionization with selective ion mode, analytes separated on DB-5 column; MDL: 2.62 ng/L (seawater), 1.32 ng/g dw (sediment), 0.85 ng/g ww (biota); LOD: 4.43 ng/L (seawater), 0.99 ng/g dw (sediment), 0.99 ng/g ww (biota); blank corrected LOQ: 4.04 ng/L (seawater), 0.62 ng/g dw (sediment), 0.23 ng/g ww (biota); Sediment or organism sample homogenized, extracted 3x with n-hexane/ethyl acetate, concentrated by rotary evaporator, solvent exchanged to isooctane, reduced under N2;
Rate Constant and Results per Recovery	Not applicable; 105±9% (seawater); 107±11% (sediment); 98±9% (biota)
Statistics, Basis, and Calculation Basis	SPSS 10.0; concentrations of total methyl siloxanes studied did not significantly vary ($p < 0.05$) between tissues analyzed (muscle, gill, intestine, brain eye, sexual gland), but did significantly vary between tissues for specific congeners; Fish-body, wet wt., lipid normalized, sediment TOC normalized; Steady state
Results Value and Results Details	BSAF=0.716±0.456 (range: 0.445-1.61); BSAF range=0.445 - 1.61; organism concentration - range in whole-fish: 0.213 - 0.615 ng/g ww; mean concentration in sediment: 0.665±0.468
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample collection sites were reported in depth.
Domain 2: Test Design			

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Study Citation:	Hong, W. J., Jia, H., Liu, C., Zhang, Z., Sun, Y., Li, Y. F. (2014). Distribution, source, fate and bioaccumulation of methyl siloxanes in marine environment. Environmental Pollution 191:175-181.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6835730

EVALUATION

Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Analytical blanks were included and results were blank corrected. Field blanks or reference site organism were not explicitly included.
	Metric 4:	Test Substance Stability	High	Sample storage and preparation were reported in depth and were appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	No environmental conditions or sample characteristics were reported despite sediment TOC being measured.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Medium	Organism species was reported, no other details (weight, age, etc.).
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were appropriate; samples were collected during one sampling campaign only, may not be representative.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; Limits of detection and extraction recovery were reported. Raw data was reported but not on a per site basis. BSAF were normalized to lipid content and TOC content in soil.
	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. Negative correlation between BSAF and log Kow seen for similar compounds was not observed, and values were lower than BSAFs reported for midges.
	Metric 18:	QSAR Models	N/A	Not applicable.

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Study Citation:	Hong, W. J., Jia, H., Liu, C., Zhang, Z., Sun, Y., Li, Y. F. (2014). Distribution, source, fate and bioaccumulation of methyl siloxanes in marine environment. Environmental Pollution 191:175-181.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6835730

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

Study Citation:	Horii, Y., Minomo, K., Motegi, M., Ohtsuka, N., Nojiri, K. (2013). Concentration profiles of volatile methylsiloxanes in river water, sediment, and fish samples from Tokyo Bay watershed. Organohalogen Compounds 75:1291-1294.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002455

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; other: BSAFs in rivers
Solvent, Reactivity, Storage, Stability	NR; NR; All samples were stored in cooler boxes immediately after the sampling and transported to the laboratory, then kept at 4°C for water samples and -20°C for sediment and fish samples.; NR
Radiolabel, Source, State, Purity	NR; water, sediment, fish samples from Ara and Tama rivers, Japan; NR; NR Notes: 13C-labeled D4 in acetone used as an internal standard.
Test Organism and Test Organism Details	2 species from Ara River and 6 species from Tama River were reported (from figure); not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	natural water; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	not applicable; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	environmental; not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable; Not Reported
Duration, Parameter, and Sampling Frequency	field samples collected Oct-Nov 2012.; BSAF Ara River; BASF Tama River; water, sediment and fish from each site.
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; Not Reported;
Rate Constant and Results per Recovery	Not Reported; internal standard recoveries were 90±3.2% for water, 96±7% for sediment, and 90±7.2% for fish.
Statistics, Basis, and Calculation Basis	mean fish concentration 35 ng/g w.w.; whole body w.w.; steady-state
Results Value and Results Details	1.2 g-lipid/g-TOC; 0.1 g-lipid/g-TOC; Concentrations in sediment were below method detection limit (MDL), therefore, half the MDL values were used in the calculation.
Metabolites, Reference, and Results Reference Substance	not applicable; not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were included.
	Metric 4:	Test Substance Stability	High	The storage and preparation of the samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Horii, Y., Minomo, K., Motegi, M., Ohtsuka, N., Nojiri, K. (2013). Concentration profiles of volatile methylsiloxanes in river water, sediment, and fish samples from Tokyo Bay watershed. Organohalogen Compounds 75:1291-1294.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002455

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	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	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 the study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	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	Lipid normalized BCF and lipid content were not measured or reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	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:	Jia, H., Zhang, Z., Wang, C., Hong, W. J., Sun, Y., Li, Y. F. (2015). Trophic transfer of methyl siloxanes in the marine food web from coastal area of Northern China. Environmental Science & Technology 49(5):2833-2840.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	4182280

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Trophic magnification of D4 in marine food webs of coastal Northern China.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Standards obtained from Tokyo Chemical Industry (Wellesley Hills, MA).; NR; NR
Test Organism and Test Organism Details	Pacific herring, mackerel, greenling, schlegel's black rockfish, and sea catfish. Mollusks: Mactra quadrangularis, short-necked clam, mussel, black fovea snail. Clamworm, arthritic Neptune, sea lettuce.; Samples were collected from Dalian Bay (China)
Lipid Content, Test Temperature, pH, and Depuration Time	1.98±0.79% to 9.23±2.77% in fish; 1.46±0.04 to 2.83±0.24% in invertebrates; 1.91±0.06 in sea lettuce.; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Environmental exposure; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not reported
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	Gas chromatography-mass spectrometry.; Thermo Trace 2000 GC with Polaris Q MS. LOD and LOQ were 3 and 10 times the standard deviation of D4 concentrations in blanks, respectively.;
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	Trophic Magnification Factor: 1.16 (95% CI: 0.94-1.44); TMF=10^b, where Log[lipid normalized D4 conc.]=a + b{Trophic Level). 94.7% probability of TMF>1.
Metabolites, Reference, and Results Reference Substance	Not reported; One field blank was collected for every 10 biota samples during sampling process. Field blanks were exposed to air and handled in the same manner as the samples, and then sealed in glass jars with Teflon-lined caps.; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was extracted and identified using appropriate analytical techniques.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blanks were used in the analytical method.
	Metric 4:	Test Substance Stability	High	The storage and preparation of the samples containing the test substance were reported and appropriate.

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Study Citation:	Jia, H., Zhang, Z., Wang, C., Hong, W. J., Sun, Y., Li, Y. F. (2015). Trophic transfer of methyl siloxanes in the marine food web from coastal area of Northern China. Environmental Science & Technology 49(5):2833-2840.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	4182280

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	There were no reported changes in the testing conditions across the sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate and equilibrium was assumed.
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 organisms were reported 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 reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty were reported and not likely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	There were multiple study groups and no reported differences in the organism attrition.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Lipid normalized trophic magnification factors were reported and the analytical method was suitable for detecting the test substance at environmental concentrations.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods were clearly described and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

⋆ Related References: ECHA rating: 2

Study Citation:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; room temperature (appr 20°C); Radiolabeled stored refrigerated (4°C); NR
Radiolabel, Source, State, Purity	methyl-14C (5 mCi, 28.4 mCi/mmol); Dow Corning Corp. (midland, MI); Liquid; 99%
Test Organism and Test Organism Details	Midge (Chironomus tentans); approx. 10 day old second instar larvae; 50/treatment
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C (water); 6.9-7.5 (water); not applicable
Media Type, TOC, and Salinity	natural water / sediment: freshwater; 0.32-1.8 mg/L (water); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; 80-150 umho/cm (water); 20-40 mg/L CaCO3 (water)
Exposure Route, Elimination, and Nominal Measurements	whole body; not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	other; 22±2°C (water); Pond sediment (1 part) was collected and mixed with sand (2 parts) to create low organic carbon sediment (0.27%)
Duration, Parameter, and Sampling Frequency	14 days; BCF; once
Concentration	6.8 - 17 mg/kg
Analytical Method and Analytical Details	GC/MS; LSC; HPLC-RAM; organism tissue combusted and 14C measured.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; wet weight; other
Results Value and Results Details	2.6 at 6.8 mg/kg; 1.7 at 17 mg/kg; measured concentration of OMCTS in organism tissue/mean OMCTS in the sediment for the entire exposure period; calculation done at end of 14 day test period
Metabolites, Reference, and Results Reference Substance	Not reported; aqueous/sediment control system run; Not Reported

EVALUATION

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

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Study Citation:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established under static conditions.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were discussed.
	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	Low	Lipid normalized BCF and lipid content were not measured or 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	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:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; room temperature (appr 20°C); Radiolabeled stored refrigerated (4°C); NR
Radiolabel, Source, State, Purity	methyl-14C (5 mCi, 28.4 mCi/mmol); Dow Corning Corp. (midland, MI); Liquid; 99%
Test Organism and Test Organism Details	Midge (Chironomus tentans); approx. 10 day old second instar larvae; 50/treatment
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C (water); 6.9-7.5 (water); not applicable
Media Type, TOC, and Salinity	natural water / sediment: freshwater; 0.32-1.8 mg/L (water); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; 80-150 umho/cm (water); 20-40 mg/L CaCO3 (water)
Exposure Route, Elimination, and Nominal Measurements	whole body; not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	other; 22±2°C (water); Pond sediment with organic carbon content of 2.3%
Duration, Parameter, and Sampling Frequency	14 days; BCF; once
Concentration	18 - 38 mg/kg
Analytical Method and Analytical Details	GC/MS; LSC; HPLC-RAM; organism tissue combusted and 14C measured.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; wet weight; other
Results Value and Results Details	1.3 at 18 and 38 mg/kg; measured concentration of OMCTS in organism tissue/mean OMCTS in the sediment for the entire exposure period; calculation done at end of 14 day test period
Metabolites, Reference, and Results Reference Substance	Not reported; aqueous/sediment control system run; Not Reported

EVALUATION

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

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Study Citation:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established under static conditions.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were discussed.
	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	Low	Lipid normalized BCF and lipid content were not measured or 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	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:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; room temperature (appr 20°C); Radiolabeled stored refrigerated (4°C); NR
Radiolabel, Source, State, Purity	methyl-14C (5 mCi, 28.4 mCi/mmol); Dow Corning Corp. (midland, MI); Liquid; 99%
Test Organism and Test Organism Details	Midge (Chironomus tentans); approx. 10 day old second instar larvae; 50/treatment
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C (water); 6.9-7.5 (water); not applicable
Media Type, TOC, and Salinity	natural water / sediment: freshwater; 0.32-1.8 mg/L (water); Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; 80-150 umho/cm (water); 20-40 mg/L CaCO3 (water)
Exposure Route, Elimination, and Nominal Measurements	whole body; not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	other; 22±2°C (water); Pond sediment (1 part) was collected and mixed with dried compost (2.3 parts) to create high organic carbon sediment (4.1%)
Duration, Parameter, and Sampling Frequency	14 days; BCF; once
Concentration	2.6 - 54 mg/kg
Analytical Method and Analytical Details	GC/MS; LSC; HPLC-RAM; organism tissue combusted and 14C measured.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; wet weight; other
Results Value and Results Details	0.8 at 2.6 mg/kg; 0.7 at 7.4 and 19 mg/kg; 0.6 at 54 mg/kg; measured concentration of OMCTS in organism tissue/mean OMCTS in the sediment for the entire exposure period; calculation done at end of 14 day test period
Metabolites, Reference, and Results Reference Substance	Not reported; aqueous/sediment control system run; Not Reported

EVALUATION

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

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Study Citation:	Kent, D. J., Mcnamara, P. C., Putt, A. E., Hobson, J. F., Silberhorn, E. M. (1994). Octamethylcyclotetrasiloxane in aquatic sediments: Toxicity and risk assessment. Ecotoxicology and Environmental Safety 29(3):372-389.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6834021

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established under static conditions.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were discussed.
	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	Low	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	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:	Kierkegaard, A., Bignert, A., Mclachlan, M. S. (2013). Cyclic volatile methylsiloxanes in fish from the Baltic Sea. Chemosphere 93(5):774-778.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833817

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	ethyl acetate; NR; NR; NR
Radiolabel, Source, State, Purity	13C-D4; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Herring (clupea harengus); collected in 2007 and stored in the sample specimen bank at -25C; 10 g skin-free dorsal muscle tissue was excised, wrapped in aluminum foil, vacuum sealed and frozen at -17 deg C until analysis
Lipid Content, Test Temperature, pH, and Depuration Time	mean lipid % = 4.6 +/-2.7; NR; NR; NR
Media Type, TOC, and Salinity	not specified; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	field study; NR; NR
Duration, Parameter, and Sampling Frequency	NR; other; NR
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	24 hour extraction using a purge and trap method followed by GC-MS analysis; LOQ = 4.4 ng per sample;
Rate Constant and Results per Recovery	NR; average recoveries were 82%
Statistics, Basis, and Calculation Basis	NR; lipid content; concentration in herring muscle samples
Results Value and Results Details	mean concentration: 12 +/- 10 ng/g lp w; Concentrations were determined with a 24 h extraction and should be considered underestimated; most concentrations were below the LOQ (only 33% showed quantifiable amounts); concentrations were not blank corrected.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test material purity and source were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control group details were included.
Metric 4:	Test Substance Stability	Medium	The test material stability was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	The test method was not suitable; measured concentrations were below the LOQ.

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Study Citation:	Kierkegaard, A., Bignert, A., Mclachlan, M. S. (2013). Cyclic volatile methylsiloxanes in fish from the Baltic Sea. Chemosphere 93(5):774-778.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833817

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	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 of interest was reported.
	Metric 12:	Test Substance Purity	High	The sampling method was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not suitable; measured concentrations were below the limit of quantification.
	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	Low	Due to the analytical method not being appropriate, the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination **Low**

Study Citation:	Kierkegaard, A., Bignert, A., Mclachlan, M. S. (2013). Cyclic volatile methylsiloxanes in fish from the Baltic Sea. Chemosphere 93(5):774-778.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833817

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	ethyl acetate; NR; NR; NR
Radiolabel, Source, State, Purity	13C-D4; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	Herring (clupea harengus); collected in 2008; muscle tissue excised and frozen at -17C
Lipid Content, Test Temperature, pH, and Depuration Time	lipid %=0.42, 0.43, <0.13; NR; NR; NR
Media Type, TOC, and Salinity	not specified; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	field study; NR; NR
Duration, Parameter, and Sampling Frequency	NR; other; NR
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	24 hour extraction using a purge and trap method followed by GC-MS analysis; LOQ = 9.9 ng;
Rate Constant and Results per Recovery	NR; average recoveries were 82%
Statistics, Basis, and Calculation Basis	NR; lipid weight; concentration in herring muscle
Results Value and Results Details	<171, <272, <1010; Biomagnification could not be assessed due to levels below the LOQ.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	Medium	The test material purity and source were not reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control group details were included.
Metric 4:	Test Substance Stability	Medium	The test material stability was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	The test method was not suitable; measured concentrations were below the LOQ.
Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
Metric 7:	Testing Consistency	High	Testing conditions were consistent.
Metric 8:	System Type and Design	Medium	Equilibrium was not reported.

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Study Citation:	Kierkegaard, A., Bignert, A., Mclachlan, M. S. (2013). Cyclic volatile methylsiloxanes in fish from the Baltic Sea. Chemosphere 93(5):774-778.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833817

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	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 of interest was reported.
	Metric 12:	Test Substance Purity	High	The sampling method was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The analytical method was not suitable; measured concentrations were below the limit of quantification.
	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	Low	Due to the analytical method not being appropriate, the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

Study Citation:	Kierkegaard, A., van Egmond, R., McLachlan, M. S. (2011). Cyclic volatile methylsiloxane bioaccumulation in flounder and ragworm in the Humber Estuary. Environmental Science & Technology 45(14):5936-5942.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2151369

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Field samples; NR; NR
Test Organism and Test Organism Details	Flounder (Pleuronectes flesus) and common ragworm (Hediste diversicolor); Flounder were 170-190mm, when available. Ragworms were collected from undisturbed sediment at low tide.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; Ragworms: 24h. Flounder: NR.
Media Type, TOC, and Salinity	natural water / sediment: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	Samples were collected over a month period between September and October 2009 from 6 sampling sites in the Humber Estuary (England).; other; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS-EI; Trace GC Ultra (Thermo Electron Corp.), MD 800 MS detector (Fisons Instruments SpA). Procedural blank and control samples were analyzed with each extraction round. LOQ was calculated as the mean procedural blank for each sample type.;
Rate Constant and Results per Recovery	Multimedia BAF in ragworm:; Not reported
Statistics, Basis, and Calculation Basis	D4 was below LOQ in all sediment samples, 25 of the 34 flounder samples, and 11 of the 19 ragworm samples.; Not Reported; Not Reported
Results Value and Results Details	B ratio: 6 in ragworms, 14 in flounder.; B ratio is defined as the ratio of D4 and PCB-180 multimedia bioaccumulation factors.
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 was present in field samples and was extracted and identified using appropriate techniques.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks and controls were reported.
	Metric 4:	Test Substance Stability	High	The storage and preparation of the test organisms containing the test substance was reported.

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Study Citation:	Kierkegaard, A., van Egmond, R., McLachlan, M. S. (2011). Cyclic volatile methylsiloxane bioaccumulation in flounder and ragworm in the Humber Estuary. Environmental Science & Technology 45(14):5936-5942.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2151369

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	Testing conditions were not clearly reported at each sampling site but the omission is unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	High	Equilibrium was established and the study 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	Low	Some of the testing organisms details were not reported, which may have an impact on the study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was not reported in the final results and some sources of variability in the organisms were reported. These may have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Lipid normalized BCFs were not reported and several of the concentrations were below the limit of quantification.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods were clearly reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Kim, D., Cho, H. E., Won, E. J., Kim, H. J., Lee, S., An, K. G., Moon, H. B., Shin, K. H. (2022). Environmental fate and trophic transfer of synthetic musk compounds and siloxanes in Geum River, Korea: Compound-specific nitrogen isotope analysis of amino acids for accurate trophic position estimation. Environment International 161:107123.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10271413

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Trophic magnification study in Geum River, Korea
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	(13C4)-D4; NR; Liquid; NR
Test Organism and Test Organism Details	Water samples, surface sediment samples, and fifteen species of fish were sampled; Barbel Steed, pale cub, Gobioninae, skygager, crucian carp, Barbel chub, common carp, largemouth bass, Korean piscivorous chub, Light bullhead, mullet, flathead grey mullet, tone moroko, Korean sharp-belly, and Korean bullhead. Dissected dorsal muscle used for fish >5cm, whole body used for small fish <5cm, sediment samples were freeze-dried and homogenized.
Lipid Content, Test Temperature, pH, and Depuration Time	Lipid content was measured in all samples and D4 concentrations were lipid normalized.; NR; NR; NR
Media Type, TOC, and Salinity	natural water / sediment - freshwater; TOC was measured and lipid-organic carbon equivalent fractions were derived for water and sediment samples.; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	Field study; NR; Samples were collected from two sampling areas on the Geom River.
Duration, Parameter, and Sampling Frequency	NR; TMF; Two sampling periods (September and June 2020)
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; Agilent 7890 GC with Agilent 5973 MS. Field blanks (n=8) and procedural blanks (n=15) were processed.;
Rate Constant and Results per Recovery	Not Reported; 74±11%
Statistics, Basis, and Calculation Basis	Not Reported; Dissected dorsal muscle of fish samples and whole bodies of small fish (<5 cm); NR
Results Value and Results Details	Trophic magnification factor of D4: 0.7-2.3 (as reported in supporting information); Trophic levels were established using δ15N amino acid analysis. D4 concentration ranges in water, sediment, and biota were found in the supplemental information. Water (ng/L): ND (LOQ = 0.01) to 3.39; Sediment (ng/g dw): ND (LOQ = 0.002) to 9.24; Biota (ng/g dw): 0.43 to 231, (LOQ = 0.02).
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance was verified by appropriate analytical means.
Domain 2: Test Design			

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Study Citation:	Kim, D., Cho, H. E., Won, E. J., Kim, H. J., Lee, S., An, K. G., Moon, H. B., Shin, K. H. (2022). Environmental fate and trophic transfer of synthetic musk compounds and siloxanes in Geum River, Korea: Compound-specific nitrogen isotope analysis of amino acids for accurate trophic position estimation. Environment International 161:107123.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10271413

EVALUATION

Domain		Metric	Rating	Comments
	Metric 3:	Study Controls	High	Appropriate procedure and field blanks were used.
	Metric 4:	Test Substance Stability	High	The test substance storage conditions and preparation were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium is assumed to be established in environmental systems, but there was not enough data presented to verify.
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	Relevant information regarding the test organisms were reported and considered.
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	Sources of variability between sampling groups and organisms were 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	High	Target chemical recoveries and lipid normalized concentrations were reported. The analytical method was reported and appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	no; calculation; other: reevaluation of reported BCF data.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	common carp (Cyprinus carpio); not reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; 32 days
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	environmental; not reported; not reported
Test Type, Test Temperature, and Test Condition Comments	not specified; not reported; reevaluation of data
Duration, Parameter, and Sampling Frequency	64 days (32 days exposure; 32 days depuration); BCF; 14 times in 64 days (from figure)
Concentration	Not Reported
Analytical Method and Analytical Details	reported in cited document; reported in cited document;
Rate Constant and Results per Recovery	k1 (uptake) 184 L/kg ww/day; k2 (depuration) 0.11/day; may be reported in cited document
Statistics, Basis, and Calculation Basis	Parameters k1 (uptake rate constant) and k2 (elimination rate constant) were optimized via first-order Berkeley Madonna modeling of uptake and elimination (simultaneous fit) and simple first-order sequential fit of the elimination data.; whole body ww; not specified
Results Value and Results Details	1673 L/kg-ww; uptake half-life 6 days; elimination half-life 12 days
Metabolites, Reference, and Results Reference Substance	not reported; not applicable; Not Reported

EVALUATION

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

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Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism information was not reported; however, this paper is a 'comments on' and the study data is captured in the previous 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	Sampling methods were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.
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 and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Attrition or health outcomes were reported and discussed the impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The lipid content or lipid normalized BCF was not reported for BCF studies, but these deficiencies or omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: reevaluation of previously extracted reference: HERO ID: 6833792

Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	no; calculation; other: reevaluation of reported TMF data.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	planktons; ark shell; Neverita's albumen; Chinese ditch prawn; other organism data used that are not reported in this reference.
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not applicable (environmental samples)
Media Type, TOC, and Salinity	natural water; not applicable (environmental samples); not reported
Dissolved Oxygen, Conductivity, and Hardness	not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Exposure Route, Elimination, and Nominal Measurements	environmental; not reported; not reported
Test Type, Test Temperature, and Test Condition Comments	field study; not reported; estuary food web reevaluation of data
Duration, Parameter, and Sampling Frequency	Shuangtaizi estuary, China; TMF; not applicable
Concentration	Not Reported
Analytical Method and Analytical Details	reported in cited document; reported in cited document;
Rate Constant and Results per Recovery	not applicable; may be reported in cited document
Statistics, Basis, and Calculation Basis	Not Reported; other: food web; not specified
Results Value and Results Details	with plankton 0.459; without plankton 0.081; trophic dilution.
Metabolites, Reference, and Results Reference Substance	not applicable; not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	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	The test method was not suitable for the test substance. The number of species sampled was not sufficient.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.

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Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

			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	Medium	Equilibrium is assumed to be established in environmental systems, but there was not enough data presented to verify.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism information was not reported; however, this paper is a 'comments on' and the study data is captured in the previous 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	Sampling methods were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were based on data presented in the previous study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical data was limited to what was available in the previously cited study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

* Related References: reevaluation of previously extracted reference: HERO ID: 6833792

Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, and Guideline	no; calculation; other: reevaluation of reported BMF data.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	planktons/Japanese snapping shrimp; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not applicable (environmental samples)
Media Type, TOC, and Salinity	natural water; not applicable (environmental samples); not reported
Dissolved Oxygen, Conductivity, and Hardness	not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Exposure Route, Elimination, and Nominal Measurements	environmental; not reported; not reported
Test Type, Test Temperature, and Test Condition Comments	field study; not reported; estuary food web reevaluation of data
Duration, Parameter, and Sampling Frequency	not applicable; BMF; samples from Shuangtaizi estuary, China
Concentration	Not Reported
Analytical Method and Analytical Details	reported in cited document; reported in cited document;
Rate Constant and Results per Recovery	not applicable; may be reported in cited document
Statistics, Basis, and Calculation Basis	Not Reported; predator/prey; not specified
Results Value and Results Details	2.59; planktons concentration 239 ng/g-lw; shrimp concentration 750 ng/g-lw; Since TMF is basically an average of BMFs of all prey–predator relationships, it is expected that most BMFs are less than one at higher trophic levels.
Metabolites, Reference, and Results Reference Substance	not applicable; not applicable; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	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	The test method was not suitable for the test substance. The number of species sampled was not sufficient.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.

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Study Citation:	Kim, J., Woodburn, K., Coady, K., Xu, S. H., Durham, J., Seston, R. (2020). Comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):163-173.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989153

			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	Medium	Equilibrium is assumed to be established in environmental systems, but there was not enough data presented to verify.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism information was not reported; however, this paper is a 'comments on' and the study data is captured in the previous 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	Sampling methods were not reported; however, this paper is a 'comments on' and the study data is captured in the previous study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty were based on data presented in the previous study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical data was limited to what was available in the previously cited study.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination Medium

* Related References: reevaluation of previously extracted reference: HERO ID: 6833792

Study Citation:	Krogseth, I. S., Undeman, E., Evenset, A., Christensen, G. N., Whelan, M. J., Breivik, K., Warner, N. A. (2017). Elucidating the behavior of cyclic volatile methylsiloxanes in a subarctic freshwater food web: A modeled and measured approach. Environmental Science & Technology 51(21):12489-12497.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5882872

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Calculation; other: Biota-sediment accumulation factor calculation in Three-spined Sticklebacks and Artic char in Lake Storvannet (Northern Norway).
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Field samples; NR; NR
Test Organism and Test Organism Details	Three-spined sticklebacks (Gasterosteus aculeatus) and Artic char (Salvelinus alpinus); Sticklebacks feed on plankton and benthos. 0-5 years old. 0.2-1.4 g. 3-6cm long. Artic char: 0-10 years old, 10-230 g, 10-30cm long, 1.0% lipid.
Lipid Content, Test Temperature, pH, and Depuration Time	Three-spined sticklebacks: 4.0% (whole fish); Artic char: 1.0±0.2 (muscle); Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Measured D4 concentration in stickleback (ng/g ww): 13±9.2 (4.1-28). In sediment:
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Concentrations in char: < LOQ - 19 ng/g wet weight (<LOQ - 1295 ng/g lipid weight); In stickleback: NR
Duration, Parameter, and Sampling Frequency	Not reported; Not Reported; Samples were collected in March, May, and June.
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; Agilent 7890A GC and Agilent 5975C MS. LOQ: 19-40 ng/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	Biota-sediment accumulation factor: Sticklebacks: 1.5±1.1 (0.5-3.3); Artic Char: < 6.2.; BSAF: Ratio of lipid normalized D4 concentration in fish muscle to average OC-normalized D4 concentration in sediment.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was analyzed in environmental samples using appropriate analytical methods.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blanks were used to determine the LOD and LOQ of the analytical method.
	Metric 4:	Test Substance Stability	High	The storage and preparation of the samples containing the test substance was reported.

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Study Citation:	Krogseth, I. S., Undeman, E., Evenset, A., Christensen, G. N., Whelan, M. J., Breivik, K., Warner, N. A. (2017). Elucidating the behavior of cyclic volatile methylsiloxanes in a subarctic freshwater food web: A modeled and measured approach. Environmental Science & Technology 51(21):12489-12497.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5882872

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	It is not possible to determine the test sample consistency across the samples; however, this is unlikely to have a substantial impact on the study results.
	Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	Some details regarding the fish and sediment characteristics were not reported but the omissions are unlikely to have a substantial impact on the study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Uncertainty was reported which may have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type (field exposure).
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method was appropriate; however, the percent recovery was not reported in sediment or biota samples. These omissions are unlikely to have a substantial impact on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	There was limited statistical analysis of the BSAF values reported which may have an impact on the outcome assessment.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results are reasonable as compared to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Mcgoldrick, D. J., Chan, C., Drouillard, K., Keir, M. J., Clark, M. G., Backus, S. M. (2014). Concentrations and trophic magnification of cyclic siloxanes in aquatic biota from the Western Basin of Lake Erie, Canada. Environmental Pollution 186:141-148.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2948930

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other: TMF freshwater
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Sander vitreus; plankton composite; May fly composite Hexagenia sp.; Luxilus cornutus; Perca flavescens; Notropis atherinoides; Percopsis omiscomaycus; Morone americana; Aplodinotus grunniens; 15; 1; 1; 2; 5; 5; 5; 4; 5 samples; other organism details in supplemental data
Lipid Content, Test Temperature, pH, and Depuration Time	4.1; NA; NA; 0.49; 1.6; 2.3; 2.9; 4.5; 2.1%; Not reported; Not reported; Not reported
Media Type, TOC, and Salinity	natural water: freshwater; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Not reported; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; All samples were collected from the western basin in the vicinityof Middle Sister Island in Lake Erie.
Duration, Parameter, and Sampling Frequency	summer/fall months of 2009; other; not applicable
Concentration	Not Reported
Analytical Method and Analytical Details	Turbomatrix Thermal Desorber interfaced with a Varian Saturn 2000 GC/MS/MS.; Samples spiked with 13C-labelled siloxane; D4 was purged and collected on Carbotrap B sorbent tube; then desorbed and processed through GC/MS/MS and identified based on retention time and mass spectrum.;
Rate Constant and Results per Recovery	0.74; 13C-D4 ranged from 40 to 117%
Statistics, Basis, and Calculation Basis	TMF is determined from the slope of a regression oflog contaminant D4 against trophic level.; lipid weight; Not Reported
Results Value and Results Details	system concentration for D4 was reported as 31.4±2.5 ng/g wet weight; TMF of 0.74 when all species were included; 0.73 when plankton was excluded; 1.1 when plankton and walleye excluded
Metabolites, Reference, and Results Reference Substance	not applicable; PCB180; TMF=1.2 all species included

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2: Test Substance Purity	Medium	The test substance source was not reported.
Domain 2: Test Design			
	Metric 3: Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4: Test Substance Stability	N/A	The metric is not applicable to this study type (using environmental samples).

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Study Citation:	Mcgoldrick, D. J., Chan, C., Drouillard, K., Keir, M. J., Clark, M. G., Backus, S. M. (2014). Concentrations and trophic magnification of cyclic siloxanes in aquatic biota from the Western Basin of Lake Erie, Canada. Environmental Pollution 186:141-148.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2948930

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type (using environmental samples).
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type (using environmental samples).
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type (using environmental samples).
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type (using environmental samples).
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques 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 concentration, 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 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

* Related References: ECHA rating: 2

Study Citation:	Mcgoldrick, D. J., Murphy, E. W. (2015). Concentration and distribution of contaminants in lake trout and walleye from the Laurentian Great Lakes (2008-2012). Environmental Pollution 217:85-96.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3351120

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	Not Reported; Not Reported; other: non-guideline: monitoring study
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	Lake Trout and Walleye; collected from the Great Lakes
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Media Type, TOC, and Salinity	natural lake water; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	environmental; not reported; measured
Test Type, Test Temperature, and Test Condition Comments	field study; not reported; not reported
Duration, Parameter, and Sampling Frequency	Samples collected between 2008 and 2012 were compiled; Not Reported; not specified
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; whole body w.w.; steady-state
Results Value and Results Details	not reported; Bioaccumulation factors were not calculated for the target chemical due to concentrations reported for biota only. Mean concentration (range) in Lake Superior trout = 7.0±6.8 ng/g ww (1.2-20.4), in Lake Ontario trout = 6.7±4.5 ng/g ww (1.3-28), in Lake Erie trout and walleye = 8.2±5.2 ng/g ww (2.7-21), in Lake Huron trout = 2.3±0.7 ng/g ww (1.2-3.3).
Metabolites, Reference, and Results Reference Substance	not reported; not reported; not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	High	Monitoring study; analytical standard not specified.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study.
Domain 3: Test Conditions			

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Study Citation:	Mcgoldrick, D. J., Murphy, E. W. (2015). Concentration and distribution of contaminants in lake trout and walleye from the Laurentian Great Lakes (2008-2012). Environmental Pollution 217:85-96.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3351120

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.
	Metric 6:	Testing Conditions	Low	Field conditions were not reported.
	Metric 7:	Testing Consistency	Low	Fish from various lakes were sampled.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	Medium	The test organism was reported; details were limited.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome of interest.
	Metric 12:	Test Substance Purity	High	Limited detail regarding sampling.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	BCF and lipid content were not measured or reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Endpoint specific values were not reported.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Uninformative

Study Citation:	Norwegian Environment Agency, (2019). Monitoring of environmental contaminants in freshwater ecosystems 2018 - Occurrence and biomagnification.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002468

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	none; experimental; other: environmental monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Lake Mjøsa and Lake Femunden biota samples from 2013-2018; NR; NR Notes: NR
Test Organism and Test Organism Details	Zooplankton, Mysis, Vendace, E. smelt, Brown trout; Concentrations were determined in zooplankton, Mysis, and in fish muscle of vendace, E. smelt and brown trout from Lake Mjøsa, and in brown trout from Lake Femunden.
Lipid Content, Test Temperature, pH, and Depuration Time	2018 samples: Zooplankton 6.2%, Mysis 3.3%, Vendace 3.1%, E. smelt 0.8%, Brown trout 3.4%; 2013-2018 samples Zooplankton 0.3-4.6%, Mysis 3.3%, Vendace 3.4%, E. smelt 1.2%, Brown trout 1.0-2.9%; ambient; not specified; NA
Media Type, TOC, and Salinity	natural water; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	field study; ambient; Not Reported
Duration, Parameter, and Sampling Frequency	2013-2018 sampling; Not Reported; not specified
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS equipped with DB-5MS column using large volume injection (5 μL); field blanks were included; LOQ was used as a conservative detection limit (average plus 10 × standard deviation of the procedural blank signal);
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	TMF was not calculated for D4 as the concentrations in the upper trophic levels were not above the LOD.; D4 was detected in the lower trophic levels but not detected (above the LOD of 0.8 ng/g) in the two upper trophic levels of E. smelt and brown trout in either lake. Detection frequency in Zooplankton (n=3) 100%, Mysis (n=3) 66%, E. Smelt (n=10) 0%, Vendace (n=10) 80%, Brown trout, L.Mjøsa (n=15) 0%, Brown trout, L.Femunden (n=10) 0%. Total dataset (n=51) 25%.
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	High	The source of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Field blanks were included for analytical analysis.
	Metric 4:	Test Substance Stability	High	Field samples were prepared and stored appropriately.

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Study Citation:	Norwegian Environment Agency, (2019). Monitoring of environmental contaminants in freshwater ecosystems 2018 - Occurrence and biomagnification.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002468

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate.
	Metric 6:	Testing Conditions	Medium	Limited details regarding conditions.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	High	Test organisms were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate.
	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 this study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	N/A	No results were reported or could be calculated from the data.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study.

Overall Quality Determination — High

Study Citation:	Norwegian Environment Agency, (2019). Environmental contaminants in an urban fjord, 2018.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002475

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Field study for evaluation of food chain bioaccumulation potential
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	Polychaetes, zooplankton (krill), prawns, blue mussel, herring (including gull samples: blood and eggs)and cod; additional samples of eider duck (blood and eggs) were also collected; Samples representative a food chain in the inner Oslo Fjord
Lipid Content, Test Temperature, pH, and Depuration Time	not reported; not reported; not reported; not reported
Media Type, TOC, and Salinity	natural water: marine; not reported; not reported
Dissolved Oxygen, Conductivity, and Hardness	not reported; not reported; not reported
Exposure Route, Elimination, and Nominal Measurements	environmental; not reported; concentrations of D4 in sewage sludge collected = 57.45 ng/g; D4 was not detected in effluent water or in sediment
Test Type, Test Temperature, and Test Condition Comments	field study; not reported; Oslo fjord food chain was evaluated; sediment, storm water and sewage treatment plant samples were also collected
Duration, Parameter, and Sampling Frequency	Sampling conducted in 2018; Not Reported; field blanks were used
Concentration	Not Reported
Analytical Method and Analytical Details	Concurrent solvent recondensation large volume injection gas chromatography mass spectrometry; limits of detection (LoD) and quantification (LoQ) were calculated using average of blanks plus 3 and 10 times the standard deviation for blanks, for LoD and LoQ, respectively; procedural blanks were run both before and after samples;
Rate Constant and Results per Recovery	Not Reported; not reported
Statistics, Basis, and Calculation Basis	not reported; Not Reported; steady state
Results Value and Results Details	Mean concentration of D4 in cod = 65.79 ng/g wet wt; D4 was not detected in polychaetes, zooplankton (krill), prawns, blue mussel and herring; concentrations of D4 displayed no significant relationship with trophic position
Metabolites, Reference, and Results Reference Substance	not reported; field and reference blanks; concentrations of D4 ranged from 0.67 (field blank reference STP sludge) to 6.07 ng/g (field blank Misc. Biota)

EVALUATION

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

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Study Citation:	Norwegian Environment Agency, (2019). Environmental contaminants in an urban fjord, 2018.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002475

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	Medium	The test species were reported with minimal detail; however this was not likely to hinder interpretation of the results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology was appropriate; however, quantitative bioaccumulation potentials were not reported.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were reported in the study results and the minor deviations were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were described.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the data reported.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Field study; bioconcentration; Not Reported
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Industrial, residential, and onsite treatment sites across the United States in; NA; NA
Test Organism and Test Organism Details	NR, fish, multiple species; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; monthly averages for previous years reported in the supplemental information; NR; monthly averages for previous years reported in the supplemental information; NA
Media Type, TOC, and Salinity	Natural water and sediment; NR; monthly averages for previous years reported in the supplemental information; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	Water; NR; Surface water median concentration: 0.0800 ug/L (80 ng/L, onsite treatment), 0.0200 ug/L (20 ng/L, industrial), 0.0200 ug/L (20 ng/L, residential)
Test Type, Test Temperature, and Test Condition Comments	Field study; NR; monthly averages for previous years reported in the supplemental information; Surface water and fish grab samples were collected near WWTP effluent outfalls, within the mixing zones, of WWTP sites receiving industrial D4 processor or formulator waste; residential waste; or onsite treatment at manufacturing/processing/or formulation sites.
Duration, Parameter, and Sampling Frequency	NA; Not Reported; Twice per site, between April and December 2016
Concentration	Surface water, values below MDL and estimated: 0.00871 ug/L (onsite treatment), 0.00078 ug/L (industrial), 0.00140 ug/L (residential) - Surface water: 0.640 ug/L (onsite treatment), 0.0600 ug/L (industrial), 0.295 ug/L (residential) ug/L
Analytical Method and Analytical Details	Methods based on EPA standards.; Not Reported;
Rate Constant and Results per Recovery	GC/MS-SIM; NR
Statistics, Basis, and Calculation Basis	Not conducted.; Not specified; Steady state, lipid-normalized
Results Value and Results Details	BCF = 31.2 L/g lipid (onsite treatment), 7.47 L/g lipid (industrial), 7.47 L/g lipid (residential); Surface water median concentration: 0.0800 ug/L (onsite treatment), 0.0200 ug/L (industrial), 0.0200 ug/L (residential)Fish median concentration: 0.0693 umol/g lipid (2.499 ug/g lipid, onsite treatment), 0.00414 umol/g lipid (0.1493 ug/g lipid, industrial), 0.00415 umol/g lipid (0.1493 ug/g lipid, residential)
Metabolites, Reference, and Results Reference Substance	NR; NA; NA

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable to this study type.
Metric 4:	Test Substance Stability	High	Sample preparation and storage details were reported in the supplemental information.

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

Domain	Metric		Rating	Comments
		EVALUATION		
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The study was a monitoring study not specifically designed to determine partition information; site specific results were not reported. Values were reported as summaries for the site type and BCFs calculated from this data may not be accurate.
	Metric 6:	Testing Conditions	Medium	Monthly averages for previous years of some parameters like pH and TOC are reported in the supplemental information.
	Metric 7:	Testing Consistency	High	Samples were collected and processed consistently.
	Metric 8:	System Type and Design	Low	Samples were collected in the mixing zone of a WWTP outflow. D4 inputs are therefore variable and likely not in equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Low	Test organism species and details were not reported. Lipid content was not reported but lipid normalized values were.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness. Study authors did not design study to focus on partitioning behavior.
	Metric 12:	Test Substance Purity	High	The analytical method was appropriate, detailed plans for method validation were reported in the supplemental information.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness in determining partitioning behavior.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	Organism health and other details were not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Site-specific data were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Reviewer calculated BCFs were based on median values reported across several different sites. Because the data were not site-specific, they may not be representative of partitioning behavior. Further, mixing zone sites from WWTP outfalls were sampled, which were likely not at equilibrium.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

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

Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Field study; bioconcentration; Not Reported
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Industrial, residential, and onsite treatment sites across the United States in; NA; NA
Test Organism and Test Organism Details	NR, benthic organisms, multiple species; NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; monthly averages for previous years reported in the supplemental information; NR; monthly averages for previous years reported in the supplemental information; NA
Media Type, TOC, and Salinity	Natural water and sediment; NR; monthly averages for previous years reported in the supplemental information; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	Sediment; NR; Sediment median concentration: 7410 ng/g TOC (onsite treatment), 48.4 ng/g TOC (industrial), 201 ng/g TOC (residential)
Test Type, Test Temperature, and Test Condition Comments	Field study; NR; monthly averages for previous years reported in the supplemental information; Sediment and organism grab samples were collected near WWTP effluent outfalls, within the mixing zones, of WWTP sites receiving industrial D4 processor or formulator waste; residential waste; or onsite treatment at manufacturing/processing/or formulation sites.
Duration, Parameter, and Sampling Frequency	NA; Not Reported; Twice per site, between April and December 2016
Concentration	Sediment: 903 ng/g TOC (onsite treatment), 0.00531 ng/g TOC (industrial), 0.651 ng/g TOC (residential) - Sediment: 496,000 ng/g TOC (onsite treatment), 956 ng/g TOC (industrial), 2,910 ng/g TOC(residential) ng/g TOC
Analytical Method and Analytical Details	Methods based on EPA standards.; Not Reported;
Rate Constant and Results per Recovery	GC/MS-SIM; NR
Statistics, Basis, and Calculation Basis	Not conducted.; Not specified; Steady state, lipid-normalized
Results Value and Results Details	BCF = 0.959 g TOC/g lipid (onsite treatment), 6.10 g TOC/g lipid (industrial), 0.495 g TOC/g lipid (residential); Sediment median concentration: 7410 ng/g TOC (7.41 ug/g, onsite treatment), 48.4 ng/g TOC (0.0484 ug/g, industrial), 201 ng/g TOC (0.201 ug/g residential)Benthic organism median concentration: 0.197 umol/g lipid (7.11 ug/g lipid, onsite treatment), 0.00818 umol/g lipid (0.295 ug/g lipid, industrial), 0.00276 umol/g lipid (0.0995 ug/g lipid, residential)
Metabolites, Reference, and Results Reference Substance	NR; NA; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable to this study type.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage details were reported in the supplemental information.
Domain 3: Test Conditions				

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Low	The study was a monitoring study not specifically designed to determine partition information; site specific results were not reported. Values were reported as summaries for the site type and BCFs calculated from this data may not be accurate.
	Metric 6:	Testing Conditions	Medium	Monthly averages for previous years of some parameters like pH and TOC are reported in the supplemental information.
	Metric 7:	Testing Consistency	High	Samples were collected and processed consistently.
	Metric 8:	System Type and Design	Low	Samples were collected in the mixing zone of a WWTP outflow. D4 inputs are therefore variable and likely not in equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	Low	Test organism species and details were not reported. Lipid content was not reported but lipid normalized values were.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness. Study authors did not design study to focus on partitioning behavior.
	Metric 12:	Test Substance Purity	High	The analytical method was appropriate, detailed plans for method validation were reported in the supplemental information.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness in determining partitioning behavior.
	Metric 14:	Health Outcomes Unrelated to Exposure	Low	Organism health and other details were not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Site-specific data were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Reviewer calculated BCFs were based on median values reported across several different sites. Because the data were not site-specific, they may not be representative of partitioning behavior. Further, mixing zone sites from WWTP outfalls were sampled, which were likely not at equilibrium.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination Low

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833944

		EVALUATION	
Domain	Metric	Rating	Comments

Study Citation:	Powell, D. E., Durham, J. A., Kim, J., Seston, R. M. (2014). Interim report – Trophic transfer of cyclic volatile methylsiloxames (cVMS) and selected polychlorinated biphenyl (PCB) across the aquatic food web of Lake Champlain, USA.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002453

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; experimental; other: trophic magnification
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; sediment and biota samples across 800 km2 section of Lake Champlain; NR; NR
Test Organism and Test Organism Details	zooplankton, mysid shrimp (Mysis relicta), white perch (Morone americana), alewife (Alosa pseudoharengus), lake cisco (Coregonus artedi), slimy sculpin (Cottus cognatus), trout perch (Percopsis omiscomaycus), lake whitefish (Coregonus clupeaformis), rainbow smelt (Osmerus mordax), yellow perch (Perca flavescens), brown trout (Salmo trutta), lake trout (Salvelinus namaycush); respective trophic level and environment: 2.0 pelagic, 3.04 demersal-neritic, 3.14 demersal, 3.29 pelagic-neritic, 3.35 pelagic-neritic, 3.37 demersal, 3.38 demersal-neritic, 3.43 demersal-neritic, 3.44 pelagic-neritic, 3.70 benthopelagic, 3.80 pelagic-neritic, 4.29 benthopelagic
Lipid Content, Test Temperature, pH, and Depuration Time	Biological samples were characterized for lipid content; available in previous report; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	natural water - freshwater; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	not applicable; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	environment; not applicable; measured
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable; Sediment samples were characterized for water content, total volatile matter, bulk density, and total organic carbon (TOC). Biological samples were characterized for water and lipid content. Sediment and biota were also characterized for isotopic signatures of nitrogen (N; δ15N) and carbon (C; δ13C).
Duration, Parameter, and Sampling Frequency	not applicable; median TMF by OLS (standard:benchmark); Bootstrap (standard:benchmark); corrected for exposure OLS (standard); 22-29 October 2012
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; spiked with internal standards; precautions were taken to avoid contamination and loss from evaporation and degradation during sample collection, storage and analysis.;
Rate Constant and Results per Recovery	Not Reported; not reported
Statistics, Basis, and Calculation Basis	Concentrations in fish were highly correlated with lipid content for D4 (r=43.2% to 74.8%; p<0.001); total lipid content; Not Reported
Results Value and Results Details	1.3:1.4; 1.3:1.4; 0.6-2.9; Biased and skewed estimates of field TMF may occur because of variable exposure conditions resulting from migration, concentration gradients, and habitat utilization patterns. Ecological habitat, trophic guild, sampling location, and the number of species collected may significantly impact TMF.
Metabolites, Reference, and Results Reference Substance	not applicable; compared to TMF from other studies; median TMFs 0.6-1.3

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The test substance source was not reported; however, the omissions or identified impurities were not likely to have a substantial impact on the study results.

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Study Citation:	Powell, D. E., Durham, J. A., Kim, J., Seston, R. M. (2014). Interim report – Trophic transfer of cyclic volatile methylsiloxames (cVMS) and selected polychlorinated biphenyl (PCB) across the aquatic food web of Lake Champlain, USA.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002453

EVALUATION

Domain	Metric		Rating	Comments
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Limited details were reported but may be retrievable from the cited source.
	Metric 6:	Testing Conditions	Medium	Field conditions were not reported; however omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent for all samples collected.
	Metric 8:	System Type and Design	Low	Equilibrium is expected in environmental samples; however, conditions were not equal across the study area.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism or species is routinely used for similar study types; however, one or more additional characteristics of the organisms were not reported, but these omissions were not likely to have a substantial impact on study results.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There 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 variability and uncertainty in the measurements 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 lipid content or lipid normalized BCF was not reported for BCF studies, but this data may be retrievable from cited references.
	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:	Powell, D. E., Durham, J. A., Kim, J., Seston, R. M. (2014). Interim report – Trophic transfer of cyclic volatile methylsiloxames (cVMS) and selected polychlorinated biphenyl (PCB) across the aquatic food web of Lake Champlain, USA.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7002453

		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:	Powell, D. E., Durham, J., Huff, D. W. (2010). Preliminary assessment of cyclic volatile methylsiloxane (cVMS) materials in surface sediments, cores, zooplankton, and fish of Lake Opeongo, Ontario, Canada.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996285

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Not reported; Predator-pray biomagnification factors.
Solvent, Reactivity, Storage, Stability	NR; NR; Sediment stored in polyethylene food based in the dark in the cooler; zooplankton stored in a glass jar with Teflon-lined-lid, stored in a cooler in the dark; fish stored in polyethylene bags stored in the dark at -20°C/; NR
Radiolabel, Source, State, Purity	NA; Lake Opeongo, Canada; NA; NA
Test Organism and Test Organism Details	Yellow perch (Perca flavescens), cisco (Coreogonus artedi), and lake trout (Salvelinus namaycush); n=7, 7, 5; weight: 6.0±0.4, 7.7±0.3, and 1157±225 g (respectively)
Lipid Content, Test Temperature, pH, and Depuration Time	4.15±0.19, 4.84±0.67, 7.78±0.51 % ww, respectively; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment measured, evidence for water as main exposure route for middle trophic level fish; Not applicable; Measured: < LOD, 0.37±0.05 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Samples collected from Lake Opeongo in Burlington, Ontario, Canada. Adult lake trout occupied the highest trophic level, perch and cisco occupied the middle trophic levels (determined based on d 15N signatures).
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 2-3 October 2007
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; Whole body homogenates extracted with 2:1 THF by vortex mixer; RSD 9.3%; MDL 0.47 - 0.90 ng/g ww;
Rate Constant and Results per Recovery	Not Reported; 97.9±1.9%
Statistics, Basis, and Calculation Basis	Minitab Version 15.1.0; wet wt., whole body; steady state
Results Value and Results Details	Trout-cisco BMF=1.9; Trout-perch BMF=2.4; BMF=(predator)/(prey); Mean concentrations: 25.6±1.4 (cisco), 21.0±1.4 (yellow perch), 48.7±7.4 ng/g lipid (lake trout)
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 and CASRN.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical blanks were included.
Metric 4:	Test Substance Stability	High	Sample storage and preparation was reported.
Domain 3: Test Conditions			

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Study Citation:	Powell, D. E., Durham, J., Huff, D. W. (2010). Preliminary assessment of cyclic volatile methylsiloxane (cVMS) materials in surface sediments, cores, zooplankton, and fish of Lake Opeongo, Ontario, Canada.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996285

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field study method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	Organism species, weight, and lipid content were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The out come assessment methodology was appropriate for determining biomagnification.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; the limits of detection and extraction efficiency were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods and software were reported and appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method, the lipid normalized concentrations detected in the fish were generally lower than those in other species at a similar trophic level in other locations.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Powell, D. E., Schøyen, M., Øxnevad, S., Gerhards, R., Böhmer, T., Koerner, M., Durham, J., Huff, D. W. (2018). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxanes (cVMS) in the aquatic marine food webs of the Oslofjord, Norway. Science of the Total Environment 622-623:127-139.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833812

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13 C; NR; NR; NR
Test Organism and Test Organism Details	22 types of aquatic marine organisms; trophic level and mean concentrations (lipid based) were reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Media Type, TOC, and Salinity	natural water: marine; not applicable (environmental samples); not applicable (environmental samples)
Dissolved Oxygen, Conductivity, and Hardness	not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; measured
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable (environmental samples); Not Reported
Duration, Parameter, and Sampling Frequency	field samples collected November 2008 from Oslofjord, Norway.; other; not applicable (environmental samples)
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; details cited;
Rate Constant and Results per Recovery	not applicable; Not reported
Statistics, Basis, and Calculation Basis	reported in supplemental information; lipid normalized; Not Reported
Results Value and Results Details	Trophic Magnification Factor (TMF):0.4-0.7 Using ordinary least squares regression for individual samples and bootstrap regression means by species for the Inner Oslofjord; outer Oslofjord food webs; using ordinary least squares regression: Inner Oslofjord; outer Oslofjord; using bootstrap regression: Inner Oslofjord; outer Oslofjord food webs
Metabolites, Reference, and Results Reference Substance	not applicable (environmental samples); not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name and CASRN.
Metric 2:	Test Substance Purity	Medium	The test substance source was 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	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:	Powell, D. E., Schøyen, M., Øxnevad, S., Gerhards, R., Böhmer, T., Koerner, M., Durham, J., Huff, D. W. (2018). Bioaccumulation and trophic transfer of cyclic volatile methylsiloxanes (cVMS) in the aquatic marine food webs of the Oslofjord, Norway. Science of the Total Environment 622-623:127-139.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833812

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	The test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
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

* Related References: ECHA rating: 1

Study Citation:	Powell, D. E., Suganuma, N., Kobayashi, K., Nakamura, T., Ninomiya, K., Matsumura, K., Omura, N., Ushioka, S. (2017). Trophic dilution of cyclic volatile methylsiloxanes (cVMS) in the pelagic marine food web of Tokyo Bay, Japan. Science of the Total Environment 578:366-382.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3985328

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Trophic magnification in Tokyo Bay
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Fish and sediment samples in the Tokyo Bay; NA; NA
Test Organism and Test Organism Details	Red barracuda, silver croaker, chub mackerel, Japanese sea bass, Japanese sardinella, Gizzard shad (adult and juvenile), Japanese anchovy; Except for Japanese seabass, fish pooled into 1-3 composite samples, each n=4-55 organisms
Lipid Content, Test Temperature, pH, and Depuration Time	3.9 - 20.0% ww; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not reported; Measured organism concentrations: 41.9 - 488 ng/g lipid
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Sediment and fish samples collected from 500 km^2 area of the inner Tokyo Bay
Duration, Parameter, and Sampling Frequency	November 2011; Not Reported; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not reported; Not reported;
Rate Constant and Results per Recovery	Not applicable; Not reported
Statistics, Basis, and Calculation Basis	Ordinary least squares regression (OLS) and bootstrap regression; Not Reported; Not Reported
Results Value and Results Details	Trophic magnification factor=0.5 - 1.3; R^2=3.8 - 59%, p=0.02 - 0.52 Trophic position a weak descriptor of bioaccumulation.
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Analytical blanks or reference site results were not explicitly included.
Metric 4:	Test Substance Stability	Medium	Sample storage and preparation was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field study methodology was appropriate for the test substance.

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Study Citation:	Powell, D. E., Suganuma, N., Kobayashi, K., Nakamura, T., Ninomiya, K., Matsumura, K., Omura, N., Ushioka, S. (2017). Trophic dilution of cyclic volatile methylsiloxanes (cVMS) in the pelagic marine food web of Tokyo Bay, Japan. Science of the Total Environment 578:366-382.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	3985328

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	No environmental characteristics were reported.
	Metric 7:	Testing Consistency	High	Sample collection and analysis was consistent across all organisms.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The organism species, lengths, and weights were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining trophic magnification.
	Metric 12:	Test Substance Purity	Medium	Limited details on sampling methods were reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Many methodology details were not reported, the paper focused on data analysis.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health information was not reported.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Analytical methods were not reported. Raw concentrations in organisms were reported but not in sediment (may be in supplemental information). Lipid content and lipid normalized values were included.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods for determining trophic magnification were applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were comparable to previous studies which showed weak association to trophic level.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Midge; n=5
Lipid Content, Test Temperature, pH, and Depuration Time	0.8%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 2.0;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=19.2; BAF=19.2; BAF corrected for trophic level: 6.4; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
	Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Burrowing mayfly nymphs; n=2
Lipid Content, Test Temperature, pH, and Depuration Time	2.5%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 2.0;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=6.7; BAF=6.7; BAF corrected for trophic level: 2.3; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	White sucker; n=1; 744.0 g; 42.2 cm
Lipid Content, Test Temperature, pH, and Depuration Time	2.0%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 2.6;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=6.8; BAF=0.9; BAF corrected for trophic level: 0.7; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

Domain	Metric		EVALUATION Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Common carp; n=3; 2795 g; 59.0 cm
Lipid Content, Test Temperature, pH, and Depuration Time	12.9%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 2.8;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=0.8 BAF=0.1; BAF corrected for trophic level: 0.1; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Gizzard shad; n=4; 383.0 g; 31.6 cm
Lipid Content, Test Temperature, pH, and Depuration Time	8.4%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 2.8;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=2.6; BAF=2.0; BAF corrected for trophic level: 0.7; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Gizzard shad (young of year); n=3; 30.4 g; 15.0 cm
Lipid Content, Test Temperature, pH, and Depuration Time	3.7%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.0;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=1.7; BAF=1.7; BAF corrected for trophic level: 0.6; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
	Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Silver redhorse; n=3; 1969.3 g; 55.0 cm
Lipid Content, Test Temperature, pH, and Depuration Time	7.2%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.0;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=3.5; BAF=0.4; BAF corrected for trophic level: 0.3; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Bluegill sunfish; n=3; 142.0 g; 18.3 cm
Lipid Content, Test Temperature, pH, and Depuration Time	4.8%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.1;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=1.7; BAF=0.2; BAF corrected for trophic level: 0.2; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	River carpsucker; n=1; 2807.0 g; 56.6 cm
Lipid Content, Test Temperature, pH, and Depuration Time	16.8%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.3;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=7.6; BAF=1.0; BAF corrected for trophic level: 0.6; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
	Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Shorthead redhorse; n=3; 135.3 g; 23.6 cm
Lipid Content, Test Temperature, pH, and Depuration Time	6.3%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.3;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=2.2; BAF=0.3; BAF corrected for trophic level: 0.1; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Freshwater drum; n=3; 668.3 g; 37.6 cm
Lipid Content, Test Temperature, pH, and Depuration Time	4.7%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.4;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=0.8; BAF=0.1; BAF corrected for trophic level: < 0.1; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
	Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Emerald shiner; n=4; 1.1 g; 5.3 cm
Lipid Content, Test Temperature, pH, and Depuration Time	3.5%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.4;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=2.1; BAF=0.9; BAF corrected for trophic level: 0.4; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Black crappie; n=3; 466.3 g; 30.0 cm
Lipid Content, Test Temperature, pH, and Depuration Time	7.0%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.4;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=2.1; BAF=0.3; BAF corrected for trophic level: 0.3; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	White bass; n=3; 255.0 g; 27.4 cm
Lipid Content, Test Temperature, pH, and Depuration Time	6.6%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.5;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=1.1; BAF=0.2; BAF corrected for trophic level: 0.1; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Smallmouth bass; n=3; 359.7 g; 29.1 cm
Lipid Content, Test Temperature, pH, and Depuration Time	5.7%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.5;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=2.0; BAF=0.3; BAF corrected for trophic level: 0.2; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
	Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Quillback carpsucker; n=2; 1443.0 g; 47.0 cm
Lipid Content, Test Temperature, pH, and Depuration Time	12.3%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.6;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=3.0; BAF=0.4; BAF corrected for trophic level: 0.2; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Walleye; n=3; 888.0 g; 47.6 cm
Lipid Content, Test Temperature, pH, and Depuration Time	6.9%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.6;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=1.4; BAF=0.2; BAF corrected for trophic level: 0.2; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Bioaccumulation and biomagnification in a food web in Lake Pepin, Minnesota
Solvent, Reactivity, Storage, Stability	NA; NR; Fish stored in polyethylene bags in the dark at -20°C. Sediments stored in glass jars with Teflon-lined lids at 4°C in the dark. Benthic macroinvertebrates stored in glass jars with teflon-lined lids in a cooler.; NR
Radiolabel, Source, State, Purity	NA; Lake Pepin, Minnesota; NA; NA
Test Organism and Test Organism Details	Largemouth bass; n=3; 819.3 g; 36.7 cm
Lipid Content, Test Temperature, pH, and Depuration Time	4.4%; Not reported; Not reported; Not applicable
Media Type, TOC, and Salinity	natural water / sediment; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 0.4 ng/g ww
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Trophic level: 3.8;Trophic levels determined based on d 15N isotopic signature.
Duration, Parameter, and Sampling Frequency	Not applicable; Not Reported; Samples collected 4-5 September 2007 (fish), 20 -22 May 2008 (sediment and benthic macroinvertebrates)
Concentration	0.4 ng/g
Analytical Method and Analytical Details	GC-MS; Sediment samples extracted with hexane; organisms extracted using 2:1 THF. MDL: 8.5 ng/g ww (sediment), 3.3 ng/g ww (benthic macroinvertebrates), 1.4 ng/g ww (fish);
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Not reported; Whole body wet wt.; steady state
Results Value and Results Details	BSAF=1.7; BAF=0.3; BAF corrected for trophic level: 0.2; Diet was the primary route of uptake in the food web, uptake and assimilation efficiency were related to trophic level. BAFs corrected for trophic level < 1 suggest that biomagnification does not occur in the food web.
Metabolites, Reference, and Results Reference Substance	Not reported; Not reported; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name.
Metric 2:	Test Substance Purity	High	The sample source was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Analytical controls were included and were within an acceptable range.
Metric 4:	Test Substance Stability	High	The sample preparation and storage was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was appropriate for the test substance.
Metric 6:	Testing Conditions	Medium	Field environmental conditions were not reported.

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Study Citation:	Powell, D. E., Woodburn, K. B., Drotar, K. D., Durham, J., Huff, D. W. (2009). Trophic dilution of cyclic volatile methylsiloxane (cVMS) materials in a temperate freshwater lake.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6996286

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and basic characteristics were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups (if applicable) were reported in the study and the minor deviations or omissions were not likely to have a substantial impact on study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Organism health was not appropriate.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate and method detection limits were reported. Raw data was reported. Lipid content was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Radermacher, G., Rüdel, H., Wesch, C., Böhnhardt, A., Koschorreck, J. (2020). Retrospective analysis of cyclic volatile methylsiloxanes in archived German fish samples covering a period of two decades. Science of the Total Environment 706:136011.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833907

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	no; monitoring; other: concentration trends
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; fish samples (fillets of bream); NR; NR
Test Organism and Test Organism Details	Bream (Abramis brama); 20 per site: 8-10 year-old bream caught after spawning.
Lipid Content, Test Temperature, pH, and Depuration Time	varied; not applicable; not applicable; not applicable
Media Type, TOC, and Salinity	natural water - freshwater; not applicable; not applicable
Dissolved Oxygen, Conductivity, and Hardness	not applicable; not applicable; not applicable
Exposure Route, Elimination, and Nominal Measurements	environmental; not applicable; not applicable
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable; Samples were collected from the Saar, Rhine, Elbe, Mulde, Saale, Danube rivers and Lake Belau in Germany; the sites investigated here are almost all influenced by effluents from upstream WWTPs
Duration, Parameter, and Sampling Frequency	1995-2017; maximum concentrations; every 2 years
Concentration	Not Reported
Analytical Method and Analytical Details	GC-ICP-MS/MS; Limit of detection: 3.1-16.8 ng/g ww; limit of quantification: 9.31-50.5 ng/g ww;
Rate Constant and Results per Recovery	Not Reported; spiked recoveries: 98±16%; spiked method blanks: 94±9%
Statistics, Basis, and Calculation Basis	$p<0.0001$, two-tailed evaluation.; other; field samples
Results Value and Results Details	Rhine (2011): 216 ng/g ww; Saar (2009): 321 ng/g ww; strong correlations with fat contents (r=0.496, n=56).
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 and CASRN.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	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			

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Study Citation:	Radermacher, G., Rüdel, H., Wesch, C., Böhnhardt, A., Koschorreck, J. (2020). Retrospective analysis of cyclic volatile methylsiloxanes in archived German fish samples covering a period of two decades. Science of the Total Environment 706:136011.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833907

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Uninformative	The test method was not suitable for the test substance. These deviations or lack of information resulted in serious flaws that make the study unusable.
	Metric 6:	Testing Conditions	Low	Inappropriate test conditions for the study method and the deviations were likely to have a substantial impact on the results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this 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	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	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	Medium	Attrition or health outcomes were not reported; however, this omission was not likely to have a substantial impact on study results.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Lipid normalized BCF and lipid content were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989160

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	None; Experimental; other: Field study concentrations
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	No; Aldrich; NR; 97% or better
Test Organism and Test Organism Details	cod; 3 pools of 5 fish; (average length; average weight; average stomach content): sample 1: 38.36 cm; 509.4 g; 43.4 g; sample 2: 44.46 cm; 832.6 g; 163.9 g; sample 3: 41.84 cm; 732.6 g; 63.0 g
Lipid Content, Test Temperature, pH, and Depuration Time	cod stomach content 1.8-2.0%; cod liver 15.6-33.3%; Not reported; Not reported; not applicable
Media Type, TOC, and Salinity	natural water / sediment: marine; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	environmental; not applicable; not applicable
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	sample dates: Seawater & sediment: Oct 25, 2006; Cod: Oct 24, 2006; concentration: water; sediment; cod stomach content; cod liver; not applicable
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; GC: Splitless inject, Helium carrier gas, Temp program: 35°C, 3min, 7°/min, 130°C, 0 min, 30°/min, 325°C, 5 min. Inter temp: 250°C; MS: Ion source temp: 200°C; Electron impact w/acceler at 8000V, Resolution: 10000 at 5%; ion monitoring at 295.1037 m/z;
Rate Constant and Results per Recovery	Not reported; not applicable
Statistics, Basis, and Calculation Basis	not applicable; not applicable; other
Results Value and Results Details	<0.03 ug/L; <23-24 ng/g dry weight; 283-474 ng/g lipid weight; 244-860 ng/g lipid weight; highly elevated concentrations were found in cod liver. Stomach content concentrations were slightly lower. Lower trophic organism levels were much lower. However, there are too many uncertainties to draw an unequivocal conclusion on biomagnification in the food chain.
Metabolites, Reference, and Results Reference Substance	Not reported; not applicable; Not Reported

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified 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	N/A	The metric is not applicable to this study type.

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Study Citation:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6989160

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	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	High	Test organism information was reported, including species and body weigh.
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 (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical concentrations and the lipid content were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistic and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	SEHSC, (2020). Request for risk evaluation under the Toxic Substances Control Act; Octamethylcyclotetrasiloxane (D4; CASRN: 556-67-2).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7296376

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; experimental; other: food web
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Organism and Test Organism Details	polychaetes, blue mussel, krill, prawn and Atlantic herring, herring gull, Atlantic cod from inner Oslofjord, Norway; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; NR
Media Type, TOC, and Salinity	natural water - marine; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	Field study; NR; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; once in Autumn 2018
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not Reported; D4 concentrations not detected in lower trophic level organisms; D4 levels in cod liver ranged from 16.2 to 130 ng/g ww (mean concentration of 65.8 ng/g ww). Results suggest no significant relationship with trophic position.
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 source or purity of the test substance were 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	Medium	Limited detail reported; primary source cited may have additional information.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Limited detail reported; primary source cited may have additional information.
Metric 6:	Testing Conditions	Medium	Limited detail reported; primary source cited may have additional information.

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Study Citation:	SEHSC, (2020). Request for risk evaluation under the Toxic Substances Control Act; Octamethylcyclotetrasiloxane (D4; CASRN: 556-67-2).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7296376

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable.
	Metric 10:	Sampling Methods	Medium	Limited detail reported; primary source cited may have additional information.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 12:	Test Substance Purity	Medium	Limited detail reported; primary source cited may have additional information.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail reported; primary source cited may have additional information.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Limited detail reported; primary source cited may have additional information.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Study results consistent with similar data. 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 Medium

* Related References: Not found in HERO Ruus et al. 2019 Ruus, A., Bæk, K., Rundberget,T., Allan, I., Beylich, B., Schlabach, M., Warner, N., Borgå, K.,Helberg, M. 2019. Environmental Contaminants in an Urban Fjord, 2018. NorwegianEnvironment Agency; Report M-1441.

Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7310566

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, Type, and Guideline	Not Reported; calculation; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	Not Reported; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; Not Reported; calculated using methods of Gobas et al. (2019)
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not Reported; BCFk = 2,953 liters per kilogram (L/kg) fish wwt, and as lipid adjusted = 3,567 L/kgwwt (Calculated per Fish Bioaccumulation ADME)BMFk = 0.068 kg food dwt/kg fish wwt, the lipid adjusted BMF (BMFkL) = 0.3611 (Calculator for OECD 305)
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 3: Test Conditions				

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Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7310566

Domain		Metric	EVALUATION Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	Medium	The test organism was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: Cited Gobas et al. (2019) (HERO ID: 7002444)

Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7310566

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, Type, and Guideline	Not Reported; Not Reported; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	species from Lake Mjøsa, Norway; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	Not Reported; Not Reported; Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Concentration	Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Rate Constant and Results per Recovery	Not Reported; Not Reported
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not Reported; TMFs ranged from 0.6 to 1.3
Metabolites, Reference, and Results Reference Substance	Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source, more information may be available in the source cited.

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Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7310566

Domain		Metric	EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: Cited Borgå, K., K.A. Kidd, D.C. Muir, O. Berglund, J.M. Conder, F.A. Gobas, J. Kucklick, O. Malm, D.E. Powell. 2012. (HERO ID: 3110855)

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Test Organism and Test Organism Details	fathead minnows (Pimephales promelas); NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; 4 days
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	static non-renewal test; NR; NR
Duration, Parameter, and Sampling Frequency	10-day exposure; 4 days depuration; BCF; NR
Concentration	NR 0.48 - 4.8 mg/L
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	NR; NR
Statistics, Basis, and Calculation Basis	NR; NR; Not Reported
Results Value and Results Details	The highest BCF reported was 1,350; Uptake by fish was very rapid (<1 day) after which the levels in the fish were stable. The rate of depuration in the high exposure test was slower than the rate in the low exposure test. The eye-fitted depuration curve showed a half-life of slightly less than 4 days in the "high" exposure and less than 2 days in the "low" exposure test. EPA (USEPA 1985b) reviewed this study and concluded that fish would bioconcentrate D4 and that it would not be metabolized by the fish or rapidly excreted.
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	Not reported in this secondary source; more details may be available in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 3: Test Conditions				

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism and species were reported; more details may be in the source cited.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: Cited from Dow Corning Corp. 1985a. TSCA sec 8(d) submission 878215091. Bioconcentration of octamethylcyclotetrasiloxane in fish. 1984.Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. (Not in HERO at the time of extraction).

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889398

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	no; experimental; Not Reported
Solvent, Reactivity, Storage, Stability	Acetone; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: D4 was diluted in acetone and applied to small glass beads
Test Organism and Test Organism Details	fathead minnows (Pimephales promelas); NR
Lipid Content, Test Temperature, pH, and Depuration Time	NR; NR; NR; 7 days
Media Type, TOC, and Salinity	NR; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	Continuous renaturation test system.; NR; NR
Duration, Parameter, and Sampling Frequency	14 days; BCF; NR
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	NR; NR;
Rate Constant and Results per Recovery	NR; NR
Statistics, Basis, and Calculation Basis	NR; NR; fish concentration divided by water concentration
Results Value and Results Details	BCF on day 14 was 12,107; The body burden level of 339 ug/gm at 14 days had not reached a steady state concentration within the test period. In the depuration phase there was a two-phase linear elimination pattern, with an initial shallow compartment (half-life=16.8 hours) and a later deep compartment (half-life=120 hours). EPA (USEPA 1985b) reviewed this study and concluded that fish would bioconcentrate D4 and that it would not be metabolized by the fish or rapidly excreted.
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Not reported in this secondary source; more details may be available in the source cited.
Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source; more details may be available in the source cited.
Metric 6:	Testing Conditions	Medium	Not reported in this secondary source; more details may be available in the source cited.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism and species were reported; more details may be in the source cited.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source; more details may be available in the source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source; more details may be available in the source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: Cited from Dow Corning Corp. 1985a. TSCA sec 8(d) submission 878215091. Bioconcentration of octamethylcyclotetrasiloxane in fish. 1984.Washington, DC: Office of Toxic Substances, U.S. Environmental Protection Agency. (Not in HERO at the time of extraction).

Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Protocol for Conduct of a Flow-Through Partial Life-Cycle Sediment Toxicity Test with Midges Following TSCA guidelines, SLI Protocol #012390/TSCA SED-CHI
Solvent, Reactivity, Storage, Stability	Acetone; NR; ~20°C in a ventilated cabinet (unlabeled); refrigerated at 4°C (radiolabeled); NR
Radiolabel, Source, State, Purity	Methyl-14C, 5 mCi, 28.4 mCi/mmole; Dow Corning Corporation, Midland, Michigan, USA (unlabeled); Wizard Laboratories, Davis, California, USA; Colorless liquid; 99%
Test Organism and Test Organism Details	Midge larvae, Chironomus tentans; Second-instar larvae, ~ 10d old
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C; 7.3 (sediment); 6.9 - 7.2 (water); Not reported
Media Type, TOC, and Salinity	natural sediment: freshwater; 0.27% (sediment); Not applicable
Dissolved Oxygen, Conductivity, and Hardness	6.8 - 7.8 mg/L; 120 umhos/cm; 40 - 43 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	sediment; calculations based on sediment and interstitial water conducted; Not reported; Nominal: 50, 100, 200, 400, and 800 mg/kg; Measured: 6.8, 17, 32, 65, and 130 mg/kg; 0.76, 1.1, 1.1, 1.1, and 3.6 mg/L (interstitial water)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 22±2°C; Pond sediment (sandy loam) mixed with fine sand to achieve a low organic sediment
Duration, Parameter, and Sampling Frequency	14 days; Not Reported; 0, 3, 7, 10, and 14 d
Concentration	6.8 - 130 µg/L
Analytical Method and Analytical Details	Packard Model 306 sample oxidizer (sediment and pooled organisms) LSC (sediment, organism, and water; 14CO2 trapped in Carbosorb;
Rate Constant and Results per Recovery	Not applicable; 96.5±3.99% (water)
Statistics, Basis, and Calculation Basis	Dunnett's test or Bonferroni T-Test; Chi-Square or Shapiro-Wilk's tests; Student's t test; Whole organism, Wet weight.; steady state
Results Value and Results Details	BCF=0.8 - 4.4 and 1.5 - 1.9 (sediment); 7.1 - 39 and 24 - 30 (interstitial water); Reported for the two lowest exposures only.
Metabolites, Reference, and Results Reference Substance	Not reported; Solvent control and control; Not reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included and the test substance was below the detection limit in the solvent and blank control.
Metric 4:	Test Substance Stability	High	Test substance preparation and storage were reported.
Domain 3: Test Conditions			

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Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

			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	Appropriate water and sediment conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the systems were capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The species source and life stage were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Organism mortality increased at the higher exposures.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate. BCFs were not lipid-normalized and were only reported for the two lowest concentrations.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were thoroughly described.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Protocol for Conduct of a Flow-Through Partial Life-Cycle Sediment Toxicity Test with Midges Following TSCA guidelines, SLI Protocol #012390/TSCA SED-CHI
Solvent, Reactivity, Storage, Stability	Acetone; NR; ~20°C in a ventilated cabinet (unlabeled); refrigerated at 4°C (radiolabeled); NR
Radiolabel, Source, State, Purity	Methyl-14C, 5 mCi, 28.4 mCi/mmole; Dow Corning Corporation, Midland, Michigan, USA (unlabeled); Wizard Laboratories, Davis, California, USA; Colorless liquid; 99%
Test Organism and Test Organism Details	Midge larvae, Chironomus tentans; Second-instar larvae, ~ 10d old
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C; 7.9 (sediment); 6.0 - 7.0 (water); Not reported
Media Type, TOC, and Salinity	natural sediment: freshwater; 2.3% (sediment); Not applicable
Dissolved Oxygen, Conductivity, and Hardness	6.0 - 6.8 mg/L; 100 umhos/cm; 40 - 45 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	sediment; calculations based on sediment and interstitial water conducted; Not reported; Nominal: 50, 100, 200, 400, and 800 mg/kg; Measured: 18, 38, 76, 120, and 250 mg/kg; ND, 0.17, 0.34, 0.47, and 0.87 mg/L (interstitial water)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 22±2°C; Pond sediment (sandy loam), a medium organic sediment
Duration, Parameter, and Sampling Frequency	14 days; Not Reported; 0, 3, 7, 10, and 14 d
Concentration	18 - 250 µg/L
Analytical Method and Analytical Details	Packard Model 306 sample oxidizer (sediment and pooled organisms) LSC (sediment, organism, and water; 14CO2 trapped in Carbosorb;
Rate Constant and Results per Recovery	Not applicable; 96.5±3.99% (water)
Statistics, Basis, and Calculation Basis	Dunnett's test or Bonferroni T-Test; Chi-Square or Shapiro-Wilk's tests; Student's t test; Whole organism, Wet weight.; steady state
Results Value and Results Details	BCF=1.2 - 1.3 and 1.0 - 1.5 (sediment); 218 - 329(interstitial water); Reported for the two lowest sediment exposures and the 0.17 mg/L water calculation only.
Metabolites, Reference, and Results Reference Substance	Not reported; Solvent control and control; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included and the test substance was below the detection limit in the solvent and blank control.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage were 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:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate water and sediment conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the systems were capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The species source and life stage were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Organism mortality increased at the higher exposures.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate. BCFs were not lipid-normalized and were only reported for the two lowest concentrations.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were thoroughly described.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Protocol for Conduct of a Flow-Through Partial Life-Cycle Sediment Toxicity Test with Midges Following TSCA guidelines, SLI Protocol #012390/TSCA SED-CHI
Solvent, Reactivity, Storage, Stability	Acetone; NR; ~20°C in a ventilated cabinet (unlabeled); refrigerated at 4°C (radiolabeled); NR
Radiolabel, Source, State, Purity	Methyl-14C, 5 mCi, 28.4 mCi/mmole; Dow Corning Corporation, Midland, Michigan, USA (unlabeled); Wizard Laboratories, Davis, California, USA; Colorless liquid; 99%
Test Organism and Test Organism Details	Midge larvae, Chironomus tentans; Second-instar larvae, ~ 10d old
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C; 7.5 (sediment); 6.8 - 7.7 (water); Not reported
Media Type, TOC, and Salinity	natural sediment: freshwater; 3.9% (sediment); Not applicable
Dissolved Oxygen, Conductivity, and Hardness	6.0 - 7.7 mg/L; 197 - 293 umhos/cm; 45 - 56 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	sediment; calculations based on sediment and interstitial water conducted; Not reported; Nominal: 50, 100, 200, 400, and 800 mg/kg; Measured: 16, 32, 59, 110, and 200 mg/kg; 0.12, 0.22, 0.45, 0.75, and 1.7 mg/L (interstitial water)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 22±2°C; Pond sediment (clay loam) mixed with cow manure to achieve a high organic sediment
Duration, Parameter, and Sampling Frequency	14 days; Not Reported; 0, 3, 7, 10, and 14 d
Concentration	16 - 200 µg/L
Analytical Method and Analytical Details	Packard Model 306 sample oxidizer (sediment and pooled organisms) LSC (sediment, organism, and water; 14CO2 trapped in Carbosorb;
Rate Constant and Results per Recovery	Not applicable; 96.5±3.99% (water)
Statistics, Basis, and Calculation Basis	Dunnett's test or Bonferroni T-Test; Chi-Square or Shapiro-Wilk's tests; Student's t test; Whole organism, Wet weight.; steady state
Results Value and Results Details	BCF=1.0 - 1.1 and 0.6 - 1.5 (sediment);133 - 142 and 86 - 218 (interstitial water); Reported for the two lowest exposures only.
Metabolites, Reference, and Results Reference Substance	Not reported; Solvent control and control; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name and CASRN.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included and the test substance was below the detection limit in the solvent and blank control.
	Metric 4:	Test Substance Stability	High	Test substance preparation and storage were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate water and sediment conditions were reported.

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Study Citation:	Springborn Laboratories, (1991). Octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889402

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	High	Equilibrium was established and the systems were capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The species source and life stage were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were described in depth and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Organism mortality increased at the higher exposures.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical methods were appropriate. BCFs were not lipid-normalized and were only reported for the two lowest concentrations.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method and were thoroughly described.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Springborn Laboratories, (1991). Bioconcentration and elimination of C14-residues by fathead minnows (Pimephales promelas) exposed to octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889405

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane-methyl-14C
Confidentiality, Type, and Guideline	None; Experimental; other: TSCA Guideline 797-1520, SCI Protocol #071290/OMCTS Metabolism Study and Amendment #1
Solvent, Reactivity, Storage, Stability	Acetone; NR; refrigerated; NR
Radiolabel, Source, State, Purity	14C-OMCTS; Sigma Chemical Company; NR; >98%
Test Organism and Test Organism Details	Fathead minnows (Pimephales promelas); 28 fish aged less than or equal to 6 months with mean length and weight=35±2 mm and 0.48±0.09 grams, respectively
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20-23C; 7.0-7.7; 14 days
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	DO: 8.1-9.4 mg/L; 130-140 µmhos/cm; 29-32 mg/L
Exposure Route, Elimination, and Nominal Measurements	continuous; following depuration an average of 45% of accumulated test material remained in tissues; Nominal 0.5 µg/L; mean measured: 0.26±0.10 µg/L (treatment), 0.17±0.06 µg/L (metabolism)
Test Type, Test Temperature, and Test Condition Comments	flow-through; 20-23C; Bioconcentration based on the average tissue concentration divided by the average water concentration during steady state conditions on days 7 through 28
Duration, Parameter, and Sampling Frequency	28 days; BCF; days 1, 3, 7, 10, 14, 18, 22, 28
Concentration	0.5 µg/L
Analytical Method and Analytical Details	HPLC-RAM High Performance Liquid Chromatography with radiometric detection; Detection limit: 0.087 µg/L;
Rate Constant and Results per Recovery	Uptake Ku=2450 day-1; depuration Kd=0.183 day-1 (predicted time to 95% depuration=16 days); Recovery rates 97.2-103%; results not adjusted for recovery; QC samples: 107±3.41% for water analysis and 102±4.27% for combusted samples.
Statistics, Basis, and Calculation Basis	BCF: 95%CI: 9380-16100X; Not Reported; steady state
Results Value and Results Details	12400X; predicted BCF=13400X based on one compartment model used for uptake and depuration constants; whole body bioconcentration factor BCF at steady state
Metabolites, Reference, and Results Reference Substance	no evidence of metabolism was observed; control fish; no measurable test material

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 were included.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions			

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Study Citation:	Springborn Laboratories, (1991). Bioconcentration and elimination of C14-residues by fathead minnows (Pimephales promelas) exposed to octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5889405

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were appropriate.
	Metric 7:	Testing Consistency	High	Testing was consistent across groups.
	Metric 8:	System Type and Design	High	The system was appropriate.
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	High	A standard species was used.
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 was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Springborn Laboratories, (1991). Supplemental study: octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions (final report) w-cover letter 072691.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5898831

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; OMCTS
Confidentiality, Type, and Guideline	None; Experimental; other: "Protocol for Conduct of a Flow-Through Partial-Life-Cycle Sediment Toxicity Test with Midges Following TSCA Guidelines", SLI Protocol #060391/TSCA SED-CHI
Solvent, Reactivity, Storage, Stability	Acetone; NR; Stored at ~ 20°C in a ventilated cabinet (unlabeled), refrigerated at 4°C (radiolabeled); NR
Radiolabel, Source, State, Purity	Methyl-14C, 2 mCi, 17.1 mci/mmole; Dow Corning Corporation, Midland, Michigan (unlabeled); Sigma Chemical Company, St. Louis, MO (radiolabeled); Colorless liquid; 99% a.i. (unlabeled)
Test Organism and Test Organism Details	Chironomus tentans, midge; 50/treatment
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 22±2°C; 6.9 - 7.5 (water) 8.1 (sediment); Not applicable
Media Type, TOC, and Salinity	natural sediment; 0.67 mg/L (water), 4.1% (sediment); Not reported
Dissolved Oxygen, Conductivity, and Hardness	5.8 - 7.6 mg/L; 80 - 150 umhos/cm; 20 - 40 mg/L CaCO3
Exposure Route, Elimination, and Nominal Measurements	Sediment; Not applicable; Measured: 2.6, 7.4, 19, 54, and 170 mg/kg; Nominal: 8.0, 24, 80, 240, and 840 mg/kg
Test Type, Test Temperature, and Test Condition Comments	static; 22±2°C; Pond sediment amended with cow manure to adjust the organic carbon content.
Duration, Parameter, and Sampling Frequency	14 days; Not Reported; Once
Concentration	2.6 - 170 mg/kg
Analytical Method and Analytical Details	Liquid Scintillation Counting (LOD 0.0071 mg/L); Organism and sediment samples combusted, 14CO2 trapped in carbosorb and scintillation fluid.;
Rate Constant and Results per Recovery	Not Reported; Not reported
Statistics, Basis, and Calculation Basis	Student's t-test, Shapio-Wilk's test,; Not reported; steady state
Results Value and Results Details	CF=0.77 - 0.81, 0.61 - 0.74, 0.63 - 0.68, and 0.57 - 0.67; at 2.6, 7.4, 19, and 54 mg/kg, respectively
Metabolites, Reference, and Results Reference Substance	Not Reported; Solvent control; Not reported

EVALUATION

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

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Study Citation:	Springborn Laboratories, (1991). Supplemental study: octamethylcyclotetrasiloxane - the subchronic toxicity to midge larvae (chironomus tentans) under flow-through conditions (final report) w-cover letter 072691.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	5898831

			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	Appropriate testing conditions, including water and sediment characteristics, were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups and replicates.
	Metric 8:	System Type and Design	High	Equilibrium was established and the systems were capable of maintaining test substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	High	The test organism species and ending weight and size were reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining bioaccumulation.
	Metric 12:	Test Substance Purity	High	Sampling methods were reported in great detail and were appropriate, sampling frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	High	Mortality was observed at some exposures but there were not used for bioaccumulation determination.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; limits of detection were reported. Raw data was reported. Lipid-normalized values and lipid content were not included.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Appropriate statistical methods were applied for comparison between the test and control groups.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable and well justified.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination High

Study Citation:	Wang, W., Cho, H. S., Kim, K., Park, K., Oh, J. E. (2021). Tissue-specific distribution and bioaccumulation of cyclic and linear siloxanes in South Korean crucian carp (carassius carassius). Environmental Pollution 288:17789.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077772

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	No; experimental; other: Not specified; concentration in water, sediment and carp samples evaluated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Aldrich (St. Louis, MO, USA); NR; >97% Notes: 13C4-D4 from Moravek Biochemical (Brea, CA, USA) and were used as internal standards
Test Organism and Test Organism Details	Crucian carp; Collected from three major river basins in South Korea during June 2018 to August 2019
Lipid Content, Test Temperature, pH, and Depuration Time	1.67% calculated using representative values of lipid content; NR; NR; NR
Media Type, TOC, and Salinity	natural water / sediment - freshwater; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	Field Study; NR; NR
Duration, Parameter, and Sampling Frequency	NR; BAF; Samples collected on 2 dates at 3 different locations on Namhan and Yeongsan Rivers and 4 locations on the Nakdong River.
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	gas chromatography couples with a tandem mass spectrometer.; Method detection limit (MDL) in water =1.24 ng/L, sediment 0.20 ng/g, and crucian carp = 0.24 ng/g;
Rate Constant and Results per Recovery	NR; 53-69.8% for freshwater, 68.1-84.4% for sediment, and 68.7-73.9% for crucian carp tissues
Statistics, Basis, and Calculation Basis	Statistical analyses were conducted using SPSS (version 23.0) and SigmaPlot (version 12.0) for Windows. Statistical differences were determined using the Mann-Whitney U test and multivariate analysis of variance (MANOVA). Correlation coefficients were determined using the Spearman analysis. Statistical significance was set at $p<0.05$.; Other: Carp muscle; steady state assumed for field samples
Results Value and Results Details	4141 L/kg; D4 concentrations (median, detection frequency): In water, not detected to 271 ng/L (52.7 ng/L, 85); in sediment, 0.262–16.9 ng/g-dw (1.17 ng/g-dw, 100); and in crucian carp muscle, not detected to 31.0 ng/g-ww (0.656 ng/g-ww, 76).
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

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

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Study Citation:	Wang, W., Cho, H. S., Kim, K., Park, K., Oh, J. E. (2021). Tissue-specific distribution and bioaccumulation of cyclic and linear siloxanes in South Korean crucian carp (carassius carassius). Environmental Pollution 288:17789.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077772

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were missing.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reasonable, some details were omitted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods or kinetic calculations were clearly described; however, some data were not provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Wang, W., Cho, H. S., Kim, K., Park, K., Oh, J. E. (2021). Tissue-specific distribution and bioaccumulation of cyclic and linear siloxanes in South Korean crucian carp (carassius carassius). Environmental Pollution 288:17789.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077772

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, and Guideline	No; experimental; other: Not specified; concentration in water, sediment and carp samples evaluated
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Aldrich (St. Louis, MO, USA); NR; >97% Notes: 13C4-D4 from Moravek Biochemical (Brea, CA, USA) and were used as internal standards
Test Organism and Test Organism Details	Crucian carp; Collected from three major river basins in South Korea during June 2018 to August 2019
Lipid Content, Test Temperature, pH, and Depuration Time	1.67% calculated using representative values of lipid content; NR; NR; NR
Media Type, TOC, and Salinity	natural water / sediment - freshwater; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	NR; NR; NR
Test Type, Test Temperature, and Test Condition Comments	Field Study; NR; NR
Duration, Parameter, and Sampling Frequency	NR; BSAF; Samples collected on 2 dates at 3 different locations on Namhan and Yeongsan Rivers and 4 locations on the Nakdong River.
Concentration	NR NR - NR NR NR
Analytical Method and Analytical Details	gas chromatography couples with a tandem mass spectrometer.; Method detection limit (MDL) in water =1.24 ng/L, sediment 0.20 ng/g, and crucian carp = 0.24 ng/g;
Rate Constant and Results per Recovery	NR; 53-69.8% for freshwater, 68.1-84.4% for sediment, and 68.7-73.9% for crucian carp tissue
Statistics, Basis, and Calculation Basis	Statistical analyses were conducted using SPSS (version 23.0) and SigmaPlot (version 122.0) for Windows. Statistical differences were determined using the Mann-Whitney U test and multivariate analysis of variance (MANOVA). Correlation coefficients were determined using the Spearman analysis. Statistical significance was set at $p<0.05$.; Other: Carp muscle; steady state assumed for field samples
Results Value and Results Details	2.36 +/- 1.84; D4 concentrations (median, detection frequency): In water not detected to 271 ng/L (52.7 ng/L, 85); in sediment 0.262–16.9 ng/g-dw) (1.17 ng/g-dw, 100) and in crucian carp muscle not detected to 31.0 ng/g-ww (0.656 ng/g-ww, 76).
Metabolites, Reference, and Results Reference Substance	NR; NR; NR

EVALUATION

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

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Study Citation:	Wang, W., Cho, H. S., Kim, K., Park, K., Oh, J. E. (2021). Tissue-specific distribution and bioaccumulation of cyclic and linear siloxanes in South Korean crucian carp (carassius carassius). Environmental Pollution 288:17789.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	10077772

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were missing.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reasonable, some details were omitted.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Statistical methods or kinetic calculations were clearly described; however, some data were not provided.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Warner, N. A., Evenset, A., Christensen, G., Gabrielsen, G. W., Borgå, K., Leknes, H. (2010). Volatile siloxanes in the European arctic: Assessment of sources and spatial distribution. Environmental Science & Technology 44(19):7705-7710.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2581892

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; experimental; other: Non-guideline study - Monitoring: sediment and biota
Solvent, Reactivity, Storage, Stability	NR; Not Reported; Not Reported; hydrolysis in water suspected
Radiolabel, Source, State, Purity	Analytical standard: Mass-labeled octamethylcyclotetrasiloxane; Analytical standard: Dow Corning Corporation, Midland, MI; Not Reported; Analytical standard: >60% purity
Test Organism and Test Organism Details	mixed zooplankton (predominantly calanoid copepods, krill, and pelagic amphipods), Atlantic cod (Gadus morhua), and shorthorn sculpin (Myxocephalus scorpius) livers, and bearded seal (Erignathus barbatus) blubber.; samples sites were located within the Svalbard archipelago
Lipid Content, Test Temperature, pH, and Depuration Time	Lipid content: Adventfjorden: Atlantic cod (n=5) 26.7-45.3%, Sculpin (n=5) 12.7-21.1%; Kongsfjorden Atlantic cod (n=5) 22.6-30.0%; Liefdefjorden Sculpin (n=5) 6.3-19.4%; Not Reported; Not Reported; Not Reported
Media Type, TOC, and Salinity	marine sediment; 0.38-2.08% (in supplemental info); Not Reported
Dissolved Oxygen, Conductivity, and Hardness	Not Reported; Not Reported; Not Reported
Exposure Route, Elimination, and Nominal Measurements	Not Reported; Not Reported; Not Reported
Test Type, Test Temperature, and Test Condition Comments	Not Reported; Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Samples collected in July 2009; Not Reported; not specified
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS; MDL (biota) = 10.8 ng/g ww (Adventfjorden), 2.2 ng/g ww (Kongsfjorden), ng/g ww (Liefdefjorden); MDL (sediment) 0.9 ng/g ww; field blanks and process blanks included;
Rate Constant and Results per Recovery	Not Reported; 83±7% (13C-D4)
Statistics, Basis, and Calculation Basis	Not Reported; Not Reported; Not Reported
Results Value and Results Details	Not Reported; Biota-Sediment Accumulation Factors were not calculated for the target chemical due to concentrations in both species and sediment samples being below the MDLs.
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	High	The source of the test substance was reported; analytical standard was used.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Appropriate controls were included.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this monitoring study.

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Study Citation:	Warner, N. A., Evenset, A., Christensen, G., Gabrielsen, G. W., Borgå, K., Leknes, H. (2010). Volatile siloxanes in the European arctic: Assessment of sources and spatial distribution. Environmental Science & Technology 44(19):7705-7710.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2581892

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this monitoring study.
	Metric 6:	Testing Conditions	Medium	Limited detail regarding site conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this monitoring study.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	Due to limitations in the analytical sensitivity, the intended outcome of interest was not addressed.
	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.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Results for the intended outcome of interest were not reported. Lack of detection in sediment and biota was attributed to either a high MDL, hydrolytic instability of D4 in the environment, or reduced use of D4 in consumer products.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Uninformative

Study Citation:	Warner, N. A., Nøst, T. H., Andrade, H., Christensen, G. (2014). Allometric relationships to liver tissue concentrations of cyclic volatile methyl siloxanes in Atlantic cod. Environmental Pollution 190:109-114.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2539942

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	No; experimental; other: monitoring data
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	[13C]-enriched octamethylcyclotetrasiloxane; Not Reported; Not Reported; 99% Notes: Also used Non-labeled standards of D4 (99% purity, Fluka, Switzerland)
Test Organism and Test Organism Details	Atlantic cod (Gadus morhua); sampled from Tromsøysund and Nipøya harbors
Lipid Content, Test Temperature, pH, and Depuration Time	measured (32.8-76.7% reported in the SI); NR; NR; NR
Media Type, TOC, and Salinity	natural sediment - marine; NR; NR
Dissolved Oxygen, Conductivity, and Hardness	NR; NR; NR
Exposure Route, Elimination, and Nominal Measurements	water; NR; measured
Test Type, Test Temperature, and Test Condition Comments	field study; NR; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; collected in November 2010 and April 2011
Concentration	$<$ 2.4 - ng/g ww in sediment (below method detection limit)
Analytical Method and Analytical Details	Hewlett Packard (HP) 6890 gas chromatograph equipped with HP 5973 mass spectrometer in electron impact mode; Not Reported;
Rate Constant and Results per Recovery	Not Reported; 74$\pm$11%
Statistics, Basis, and Calculation Basis	Not Reported; liver lipid weight; concentration in liver (D4 concentration in sediment was below detection limit)
Results Value and Results Details	liver concentrations ranged from 15.7-111 and 5.6-15.0 ng/g lw in Tromsøysund and Nipøya, respectively; D4 was not detected in sediment. The study authors attributed this to hydrolysis of D4, citing a hydrolysis half-life of 2.9 days at 9ºC. There was a negative correlation between fish size (length and weight) and D4 liver concentrations.
Metabolites, Reference, and Results Reference Substance	NR; sediment and fish liver collected from remote Arctic regions were used to serve as field blank material; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent negative control, or blank group, toxicity control, and positive control were included (where applicable).
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.

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Study Citation:	Warner, N. A., Nøst, T. H., Andrade, H., Christensen, G. (2014). Allometric relationships to liver tissue concentrations of cyclic volatile methyl siloxanes in Atlantic cod. Environmental Pollution 190:109-114.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	2539942

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	Test substance was not detected in the sediment compartment.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	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	Low	The test organism or species is not routinely used for similar study types or was not appropriate.
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 of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, percent recovery, or mass balance were not measured or reported, preventing meaningful interpretation of study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

Study Citation:	Woodburn, K., Drottar, K., Domoradzki, J., Durham, J., McNett, D., Jezowski, R. (2013). Determination of the dietary biomagnification of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane with the rainbow trout (Oncorhynchus mykiss). Chemosphere 93(5):779-788.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833850

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other: Modified OECD 305
Solvent, Reactivity, Storage, Stability	NA; 6.5 mCi/g; NR; NR
Radiolabel, Source, State, Purity	14C-uniformly radiolabeled; NR; NR; 99.1%
Test Organism and Test Organism Details	rainbow trout (Oncorhynchus mykiss); Juvenile trout with an initial wet weight of 1.18 (±0.16) g and 4–6 cm in length obtained from Thomas Fish Company, Anderson, CA USA.
Lipid Content, Test Temperature, pH, and Depuration Time	time-weighted mean concentration of 6.32% (±1.52); 12±2°C; monitored but not reported; 42 days
Media Type, TOC, and Salinity	natural water; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	monitored but not reported; Not reported; monitored but not reported
Exposure Route, Elimination, and Nominal Measurements	dietary; depuration rate constant 0.035/day; measured
Test Type, Test Temperature, and Test Condition Comments	flow-through; 12±2°C; Not Reported
Duration, Parameter, and Sampling Frequency	77 days; BMF; BMF(L); Kinetic BMFk; Lipid-adjusted BMFk(L); day 0, 1, 3, 7, 10, 14, 21, 28, 35, 36, 37, 39, 42, 49, 63, 77
Concentration	457 µg/g
Analytical Method and Analytical Details	Feed: GC/FID; Fish: GC/MS; Feed: extraction with hexane, triplicate injections; Fish: fish minus GI tract, digestive tract, and liver samples extracted with THF, radioactivity quantified with LSC, parent D4 in fish tissue measured by GC/MS;
Rate Constant and Results per Recovery	uptake 0.012 g/g/d; 94-99%
Statistics, Basis, and Calculation Basis	Not Reported; multiple; other
Results Value and Results Details	BMF: 0.28;BMF(L):0.66Kinetic BMFk:1.7Lipid-adjusted BMFk(L):4.0; Empirical steady-state BMF (wet weight); Empirical steady-state BMF(Lipid)
Metabolites, Reference, and Results Reference Substance	Not reported; control tank; 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 and CASRN.
Metric 2:	Test Substance Purity	High	The purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent blank group was 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:	Woodburn, K., Drottar, K., Domoradzki, J., Durham, J., McNett, D., Jezowski, R. (2013). Determination of the dietary biomagnification of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane with the rainbow trout (Oncorhynchus mykiss). Chemosphere 93(5):779-788.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833850

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test organism information were reported and the test species are routinely used for similar study types and appropriate for the study method or route.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements and statistical techniques were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	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.

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Study Citation:	Woodburn, K., Drottar, K., Domoradzki, J., Durham, J., McNett, D., Jezowski, R. (2013). Determination of the dietary biomagnification of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane with the rainbow trout (Oncorhynchus mykiss). Chemosphere 93(5):779-788.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833850

EVALUATION

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

Study Citation:	Xue, X., Jia, H., Xue, J. (2019). Bioaccumulation of methyl siloxanes in common carp (cyprinus carpio) and in an estuarine food web in northeastern China. Archives of Environmental Contamination and Toxicology 76(3):496-507.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833792

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	No; Tokyo Chemical Industry (Wellesley Hill, MA).; Not reported; Not reported
Test Organism and Test Organism Details	common carp (Cyprinus carpio); carp were 1 years old, acclimated in aerated (dissolved oxygen:DO $>$ 90%) and dechlorinated tap water at 20±2°C underweak light for 7 days.
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; 20±2°C; Not reported; 32 days
Media Type, TOC, and Salinity	other; Not reported; Not reported
Dissolved Oxygen, Conductivity, and Hardness	>90%; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	inhalation; skin; Not Reported; measured
Test Type, Test Temperature, and Test Condition Comments	semi-static; 20±2°C; Test chemical added every 2 days to compensate for volatilization. Water and fish analyzed for every sample date.
Duration, Parameter, and Sampling Frequency	64 days; BCF; uptake samples: 1st, 2nd, 3rd, 4th, 6th, 8th, 10th, 16th, 24th, 32nd day; depuration: 40th, 48th, 56th, 64th day
Concentration	3.35 - 7.58 other
Analytical Method and Analytical Details	GC/MS; Sample extracted, purified, concentrated, eluted and analyzed.;
Rate Constant and Results per Recovery	uptake rate 871.96/day; depuration rate 0.1407/day; Not reported
Statistics, Basis, and Calculation Basis	Not reported; fish/water concentrations; other
Results Value and Results Details	6197.34 L/Kg; log BCF 3.79
Metabolites, Reference, and Results Reference Substance	Not reported; Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	High	The test substance stability and preparation were reported and were appropriate for the study.
Domain 3: Test Conditions			

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Study Citation:	Xue, X., Jia, H., Xue, J. (2019). Bioaccumulation of methyl siloxanes in common carp (cyprinus carpio) and in an estuarine food web in northeastern China. Archives of Environmental Contamination and Toxicology 76(3):496-507.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833792

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported, including species, age, and body length and 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 and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The lipid content or lipid normalized BCF was not reported for BCF studies, but these deficiencies or 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 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:	Xue, X., Jia, H., Xue, J. (2019). Bioaccumulation of methyl siloxanes in common carp (cyprinus carpio) and in an estuarine food web in northeastern China. Archives of Environmental Contamination and Toxicology 76(3):496-507.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833792

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	No; Tokyo Chemical Industry (Wellesley Hill, MA).; Not reported; Not reported
Test Organism and Test Organism Details	Japanese snapping shrimp (Alpheus japonicus); plankton; number samples: 3; 3
Lipid Content, Test Temperature, pH, and Depuration Time	0.90±0.001%; 0.79±0.10%; not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Media Type, TOC, and Salinity	natural water: marine; not applicable (environmental samples); not applicable (environmental samples)
Dissolved Oxygen, Conductivity, and Hardness	not applicable (environmental samples); not applicable (environmental samples); not applicable (environmental samples)
Exposure Route, Elimination, and Nominal Measurements	predator/prey; Not Reported; Measured
Test Type, Test Temperature, and Test Condition Comments	field study; not applicable (environmental samples); estuary food web
Duration, Parameter, and Sampling Frequency	Environmental samples collected October 2014.; other; not applicable (environmental samples)
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; Sample extracted, purified, concentrated, eluted and analyzed.;
Rate Constant and Results per Recovery	Not applicable; Not reported
Statistics, Basis, and Calculation Basis	Not Reported; predator/prey; Not Reported
Results Value and Results Details	BMF=3.2; BMF calculated using predator and prey concentrations and estimated trophic levels
Metabolites, Reference, and Results Reference Substance	Not reported; not applicable; Not Reported

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
Metric 2:	Test Substance Purity	High	The source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	N/A	The source or purity of the test substance 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	N/A	The metric is not applicable to this study type.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	Xue, X., Jia, H., Xue, J. (2019). Bioaccumulation of methyl siloxanes in common carp (cyprinus carpio) and in an estuarine food web in northeastern China. Archives of Environmental Contamination and Toxicology 76(3):496-507.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6833792

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	High	Test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, lipid content and estimated tropic level 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 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:	Xue, X., Jia, H., Xue, J. (2020). Reply to comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):174-181.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7304431

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	none; Experimental; other: Response to comments of previously published paper HERO ID 6833792
Solvent, Reactivity, Storage, Stability	Not reported; Not reported; Not reported; Not reported
Radiolabel, Source, State, Purity	No; Tokyo Chemical Industry (Wellesley Hill, MA).; Not reported; Not reported
Test Organism and Test Organism Details	common carp (Cyprinus carpio); Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	9-22% dry weight; Not reported; Not reported; 32 days
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	Environment; Not reported; measured
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Bioaccumulation in Common Carp (Cyprinus carpio) and an Estuarine Food Web in Northeastern China
Duration, Parameter, and Sampling Frequency	64 days total (32 days of exposure); BCF; Not reported
Concentration	Not Reported
Analytical Method and Analytical Details	GC/MS; Limits of detection (LODs) and the limits of quantification (LOQs) were determined based on a signal-to-noise ratio (S/N) of 3 and 10, respectively;
Rate Constant and Results per Recovery	uptake rate k1: 199 L kg-1 day-1; depuration rate k2: 0.095 day-1; Not reported
Statistics, Basis, and Calculation Basis	Kinetics equation curve r-squared = 0.827 during uptake and 0.959 during the depuration period; fish/water concentrations; steady state
Results Value and Results Details	BCF=2100 L/Kg (based on wet weight and regression curve k1/k2); BCF=1740 (based on steady state concentration in the organism and concentration in the water); Half-life=7 days
Metabolites, Reference, and Results Reference Substance	Not reported; Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not reported; however, this paper is a 'reply to comments' and the study data is captured in the previous study.
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 and preparation were not reported; however, this paper is a 'reply to comments' and the study data is captured in the previous study.

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Study Citation:	Xue, X., Jia, H., Xue, J. (2020). Reply to comment on "Bioaccumulation of methyl siloxanes in common carp (Cyprinus carpio) and in an estuarine food web in Northeastern China". Archives of Environmental Contamination and Toxicology 78(2):174-181.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	7304431

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Testing conditions were not reported; however, this paper is a 'reply to comments' and the study data is captured in the previous study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	High	Field study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	Medium	Test organism information was not reported; however, this paper is a 'reply to comments' and the study data is captured in the previous 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	Sampling methods were not reported; however, this paper is a 'reply to comments' and the study data is captured in the previous study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	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	The lipid content and BCF was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — High

* Related References: Original study HERO ID 6833792

Study Citation:	Zhi, L., Xu, L., He, X., Zhang, C., Cai, Y. (2019). Distribution of methylsiloxanes in benthic mollusks from the Chinese Bohai Sea. Journal of Environmental Sciences 76:199-207.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6836339

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, and Guideline	None; Experimental; other: Biota-sediment accumulation factor of D4 in mollusks from the Bohai Sea (China).
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13-C-D4 was obtained from Cambridge Isotope Laboratories (Andover, MA, USA); Sigma Aldrich (St. Louis, MO, USA); NR; NR
Test Organism and Test Organism Details	Mussel (Mytilus galloprovincialis), venus clam (Cyclina sinensis) and oyster (Crassostrea talianwhanensis).; Not reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not reported; Not reported; Not reported; 12 hours in filtered water.
Media Type, TOC, and Salinity	natural water / sediment: marine; Measured, reported in appendix.; Not reported
Dissolved Oxygen, Conductivity, and Hardness	Not reported; Not reported; Not reported
Exposure Route, Elimination, and Nominal Measurements	Field exposure; Not reported; Not reported
Test Type, Test Temperature, and Test Condition Comments	field study; Not reported; Not Reported
Duration, Parameter, and Sampling Frequency	One month sampling period in September; Not Reported; 25-35 samples were collected from seven sampling sites.
Concentration	Not Reported
Analytical Method and Analytical Details	GC-MS with selective ion monitoring.; Agilent 7890 GC with Agilent 5975C MS. LOQ: 1.7-3.5 ng/g ww in mollusks, 1.4-3.1 ng/g in sediment samples.;
Rate Constant and Results per Recovery	Not reported; Not reported
Statistics, Basis, and Calculation Basis	Relative standard deviation in duplicate samples: $<$15%; Not Reported; Not Reported
Results Value and Results Details	BSAF: (Concentration in mollusk/Concentration in sediment) x (TOC/L): 0.42$\pm$0.06; TOC: g organic carbon/g dw sediment; L: g lipid/g mollusk.
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 was identified in samples using appropriate analytical methodology.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Procedural blanks were used to determine background levels.
Metric 4:	Test Substance Stability	High	The storage and preparation of the test samples was reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Zhi, L., Xu, L., He, X., Zhang, C., Cai, Y. (2019). Distribution of methylsiloxanes in benthic mollusks from the Chinese Bohai Sea. Journal of Environmental Sciences 76:199-207.
OECD Harmonized Template:	Aquatic Bioconcentration
HERO ID:	6836339

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	The testing conditions were reported.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent across the sample groups.
	Metric 8:	System Type and Design	High	The system type was appropriate.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	High	The test organisms were 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 appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in the final results was reported and not likely to have an impact on the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The chemical concentrations were reported and the analytical method was suitable for detection of the substance concentrations.
	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 results are comparable to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Andersen, M. E., Reddy, M. B., Plotzke, K. P. (2008). Are highly lipophilic volatile compounds expected to bioaccumulate with repeated exposures?. Toxicology Letters 179(2):85-92.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	448554

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, EndPoint, Type, Guideline	No; bioaccumulation; Calculated; other: in vivo and in vitro partitioning calculations (fat, blood, air, plasma, etc.)
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	Rat; Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Moisture, TOC, and Test Conditions Comments	Not Reported; Not Reported; Not Reported
Nominal Measured and Time Plateau	Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Results Value, Result Type, and Results Standard Deviation	Partition coefficient for rat in vivo plasma:air = 0.85 (reported elsewhere is literature, Andersen et al. 2001), in vitro whole blood:air = 4.31 (reported elsewhere in literature, Andersen et al.2001), in vitro perirenal fat:air = 2089 and in vitro fat:blood = 485 (calculated by authors). Tissue concentrations reported in Plotzke et al. 2000: D4 single exposure (700 ppm): 9.88 ±0.67 plasma; 184 ±6 liver; 167 ±5 perirenal. D4 15-day exposure (700 ppm): 6.29 ±0.67 plasma; 109 ±21 liver; 1080 ±170 perirenal. D4 6-month exposure (700 ppm, 5 days/week): 13.0 ±2.6 plasma; 76.7 ±6.2 liver; 1230 ±110 perirenal; 1240 ±60 brown fat; 121 ±330 abdominal fat. Therefore, D4 accumulates in fat more than other tissues. D4 does not accumulate in blood due to large clearance by exhalation and metabolism (hepatic extraction of D4 estimated to be 0.62).; Not Reported; Not Reported
Calculation Basis and Basis	Not Reported; Not Reported
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	N/A	The metric is not applicable to this study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.
Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.

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Study Citation:	Andersen, M. E., Reddy, M. B., Plotzke, K. P. (2008). Are highly lipophilic volatile compounds expected to bioaccumulate with repeated exposures?. Toxicology Letters 179(2):85-92.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	448554

		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	High	The test organism information was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	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	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.
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: Article is calculation approach and review of previously reported partition coefficients and tissue concentrations. Article cites: Andersen et al. (2001) Toxicol Sci 60, 214-231; Plotzke et al. (2000) Drug Metab Dispos 28, 192-204; Tobin et al. (2008) Inhal Toxicol 20, 513-531.

Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7289211

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, EndPoint, Type, Guideline	no; terrestrial; Bioaccumulation in perennial ryegrass (Lolium perenne); other: Solution of 14C-DMSD added to soil with ryegrass seed, grass sampled after 1 week
Solvent, Reactivity, Storage, Stability	aqueous solution with Schultz Instant Plant Food, 0.36 g; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (specific activity of 26.1 uCi/mg; Synthesized for study; NR; 96.5%
Test Organism and Test Organism Details	Perennial ryegrass (Lolium perenne); 97.2% purity
Lipid Content, Test Temperature, pH, and Depuration Time	NR; 22ºC; 6.1 (soil pH); NA
Moisture, TOC, and Test Conditions Comments	water content of 9.2 and 5.9%, but was dried to 5.1% water content prior to use; NR; 15 hours of lighting and 9 hours of darkness and a brief aeration about every 2 days
Nominal Measured and Time Plateau	nominal; NA
Duration, Parameter, and Sampling Frequency	1 week; Not Reported; Once
Analytical Method and Analytical Details	grass clippings and soils were analyzed by combustion in a R.J. HarveyOX-500 Oxidizer for residual 14C; wet grass total 14C. Extracts examined by reverse phase HPLC for total 14C; Wet grass was also extracted overnight for 20 h in 10 mL water;
Results Value, Result Type, and Results Standard Deviation	12% of the total 14C was found in Grass clippings; 56% of the 14C was found in the soil; some 14C may have been in the roots of the grass, which were not sampled; the remaining 14C probably volatilized; NR; presented in figures
Calculation Basis and Basis	NR; concentration in grass/concentration in soil
Elimination, Metabolites, Kinetic Parameter, and Statistics	NR; The 14C in the grass tissue was water extractable and determined to be DMSD by HPLC; NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations and these deviations or omissions were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were 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	High	Testing conditions were consistent.

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Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7289211

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	System type and design were not stated to be capable of maintaining substance concentrations but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	Medium	The test species is not routinely used for similar study types but this was not likely to have a substantial impact on study results
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7310566

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, EndPoint, Type, Guideline	nan; trophic magnification: terrestrial; nan; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	earthworms (Lumbricidae; n=5), eggs of fieldfare (Turdus pilaris; n=10), sparrowhawk (Accipiter nisus; n=10), and tawny owl (Strix aluco; n=6), and livers from brown rat (Rattus norvegicus; n=9), red fox (Vulpes vulpes; n=10) and badger (Melis melis; n=3); Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Moisture, TOC, and Test Conditions Comments	Not Reported; Not Reported; Not Reported
Nominal Measured and Time Plateau	Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Results Value, Result Type, and Results Standard Deviation	D4 was not detected in any of the fieldfare and sparrowhawk eggs; unlikely to biomagnify in terrestrial food webs; TMF; Not Reported
Calculation Basis and Basis	Not Reported; Not Reported
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	Medium	Secondary source, may have reported in the original article
Metric 2:	Test Substance Purity	Medium	Secondary source, may have reported in the original article
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Secondary source, may have reported in the original article
Metric 4:	Test Substance Stability	Medium	Secondary source, may have reported in the original article
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Medium	Secondary source, may have reported in the original article
Metric 6:	Testing Conditions	Medium	Secondary source, may have reported in the original article
Metric 7:	Testing Consistency	Medium	Secondary source, may have reported in the original article
Metric 8:	System Type and Design	Medium	Secondary source, may have reported in the original article
Domain 4: Test Organisms			

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Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7310566

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study
	Metric 10:	Sampling Methods	Medium	Secondary source, may have reported in the original article
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Secondary source, may have reported in the original article
	Metric 12:	Test Substance Purity	Medium	Secondary source, may have reported in the original article
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Secondary source, may have reported in the original article
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Secondary source, may have reported in the original article
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	TMFs were determined by log-linear regressions between lipid-normalized chemical concentrations and trophic positions. More information may have been reported in the original article.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	Reported values were within expected range as defined by reference substance(s)
	Metric 18:	QSAR Models	N/A	Not applicable

Overall Quality Determination Medium

* Related References: Cited Heimstad et al. (2018) (HERO ID: 7296058)

Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7310566

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, EndPoint, Type, Guideline	nan; nan; nan; Not Reported
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; Not Reported
Test Organism and Test Organism Details	terrestrial food-web of an avian top predator, the Cooper's hawk (Accipiter cooperii); Not Reported
Lipid Content, Test Temperature, pH, and Depuration Time	Not Reported; Not Reported; Not Reported; Not Reported
Moisture, TOC, and Test Conditions Comments	Not Reported; Not Reported; Not Reported
Nominal Measured and Time Plateau	Not Reported; Not Reported
Duration, Parameter, and Sampling Frequency	Not Reported; Not Reported; Not Reported
Analytical Method and Analytical Details	Not Reported; Not Reported;
Results Value, Result Type, and Results Standard Deviation	0.77; TMF; ±0.12
Calculation Basis and Basis	Not Reported; Not Reported
Elimination, Metabolites, Kinetic Parameter, and Statistics	Not Reported; Not Reported; Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 4:	Test Substance Stability	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 6:	Testing Conditions	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 7:	Testing Consistency	Medium	Not reported in this secondary source, more information may be available in the source cited.

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Study Citation:	SEHSC, (2021). Terrestrial ecological risk assessment for the octamethylcyclotetrasiloxane (D4) manufacturer-requested risk evaluation.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7310566

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	The test organisms were reported
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 12:	Test Substance Purity	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Not reported in this secondary source, more information may be available in the source cited.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Not reported in this secondary source, more information may be available in the source cited.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results seem reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: Source cited in distiller (not extracted) HERO ID: 7296054 Fremlin et al. (2018)

Study Citation:	Wildlife International Ltd, (2008). Octamethylcyclotetrasiloxane (D4): A bioaccumulation test with Lumbriculus variegatus using spiked sediment.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7002241

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane (D4)
Confidentiality, EndPoint, Type, Guideline	None; bioaccumulation: terrestrial; Experimental; other: OPPTS 850.1735
Solvent, Reactivity, Storage, Stability	NR; NR; stored under ambient conditions; NR
Radiolabel, Source, State, Purity	No; Dow Corning; Liquid; 99.75% Notes: Commerical substance: Dow Corning 244 Fluid
Test Organism and Test Organism Details	Lumbricus sp. - [Annelida]; Earthworms, Oligochaeta Lumbriculus variegatus from Environmental Consulting and Testing, Superior, Wisconsin
Lipid Content, Test Temperature, pH, and Depuration Time	Mean: 2.26% (2.05-2.49%); 23±1C (measured daily); 8.1-8.3; 23 days
Moisture, TOC, and Test Conditions Comments	peat: 65-75% moisture content; sediment: 3.2% (uptake) and 3.4% (depuration) organic content (target: 5.0±1%); sediment: 10% peat moss, 70% sand, 20% silt and kaolin clay (based on OECD 218)
Nominal Measured and Time Plateau	Nominal: 5.0 and 20 mg a.i./Kg of sediment based on dry weight of sediment; results based on measured concentrations (85.4 to 108% nominal in sediment and 90.6 to 97.7% in tissues); time to steady-state (t90): 11.2 days (at 0.86 mg a.i./Kg) and 11.5 days (at 4.06 mg a.i./Kg)
Duration, Parameter, and Sampling Frequency	51 days total; 28 days uptake; DT90; day 0, 14, and 28 (uptake period) day 14 and 23 (depuration)
Analytical Method and Analytical Details	HPLC; GC/MS or GC/FID; LOQ = 0.0500 mg a.i./L sediment and 0.0500 mg/L tissue;
Results Value, Result Type, and Results Standard Deviation	BAF: 19.6 (at 0.86 mg a.i./Kg) and 6.7 (at 4.06 mg a.i./Kg); BAFK based on Whole Tissue Concentrations(BAFK=Kinetic Bioaccumulation Factor): 19.7 (at 0.86 mg a.i./Kg) and 6.7 (at 4.06 mg a.i./Kg); BSAF; Not Reported
Calculation Basis and Basis	steady state; whole body
Elimination, Metabolites, Kinetic Parameter, and Statistics	k2 depuration rate constant: 0.21/day (at 0.86 mg a.i./Kg) and 0.20/day (at 4.06 mg a.i./Kg); not reported; Half life: 3.4 days (at 0.86 mg a.i./Kg) and 3.5 days (at 4.06 mg a.i./Kg); equations used for BAF and BAFK calculations described in draft OPPTS 850.1730 Guidance Document

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
Metric 7:	Testing Consistency	High	Testing was consistent.
Metric 8:	System Type and Design	High	The system and design were appropriate.

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Study Citation:	Wildlife International Ltd, (2008). Octamethylcyclotetrasiloxane (D4): A bioaccumulation test with Lumbriculus variegatus using spiked sediment.
OECD Harmonized Template:	Terrestrial Bioconcentration
HERO ID:	7002241

EVALUATION

Domain	Metric		Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	High	Test organism information 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	The study reported the use of sampling methods that address the outcomes of interest.
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	High	There were multiple study groups, and there were no differences among the study groups in organism attrition or health outcomes (i.e., unexplained mortality) that influenced the outcome assessment.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was acceptable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination High

Study Citation:	Bletsou, A. A., Asimakopoulos, A. G., Stasinakis, A. S., Thomaidis, N. S., Kannan, K. (2013). Mass loading and fate of linear and cyclic siloxanes in a wastewater treatment plant in Greece. Environmental Science & Technology 47(4):1824-1832.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2555998

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; other: Partitioning in WWTP sludge
Solvent, Reactivity, Storage, Stability	NA; NR; High-density polyethylene bottles and polyethylene bags; water samples filtered through glass-fiber filters and stored in the dark at -18 deg C; NR
Radiolabel, Source, State, Purity	NA; WWTP in Athens, Greece; Liquid and solid; NA
Sampling Frequency, Sampling Details, and Number of Replicates	Samples collected on 7 consecutive days in April 2012; Aqueous samples collected as 24-hr composites; NA
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; NA; Aqueous, particulate, and sludge samples collected to determine liquid-solid partitioning in a wastewater treatment plant in Athens, Greece
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Sludge; suspended particulate
Media, Recovery, and Statistics	Wastewater; 60.6 - 134% (aqueous), 53.9 – 102% (solid); 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	Solid-liquid Kd; 3.20 (influent primary settlement tank); 3.05 (primary sludge); 3.61 (effluent primary settlement tank); 3.62 (influent bioreactor); 3.40 (secondary sludge). Average = 3.38
Partition Coefficient Phase and Partition Coefficient Results	solids-water in activated sewage sludge; 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	High	The sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage were reported.

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Study Citation:	Bletsou, A. A., Asimakopoulos, A. G., Stasinakis, A. S., Thomaidis, N. S., Kannan, K. (2013). Mass loading and fate of linear and cyclic siloxanes in a wastewater treatment plant in Greece. Environmental Science & Technology 47(4):1824-1832.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2555998

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was appropriate for the test substance.
	Metric 6:	Testing Conditions	Low	Many important conditions such as organic carbon content and pH were not reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	High	The WWTP is assumed to be in dynamic equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for determining partitioning to solids.
	Metric 12:	Test Substance Purity	Medium	Sampling methods were described generally, frequency was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variability and uncertainty were addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; Extraction efficiency and limits of detection were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The plausibility of the results cannot be verified without information on organic carbon content of the solids.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — High

Study Citation:	Dow Corning, (1988). Final report on studies to investigate silicones availability from soil with cover letter dated 04/20/94.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5885304

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning; Liquid; 77% Notes: Silicone DC 344: 77% Octamethylcyclotetrasiloxane, 22% decamethylcyclopentasiloxane, 0.2% cyclosiloxanes, di-Me (cyclopolydimethylsiloxane), <0.1% hexamethylcyclotrisiloxane
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not Reported; 5
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; adsorption phase: soil and test chemical were layered for a final 50 g of soil and 250 ppm of DC 344, material was left for 24 hours. Desorption: CaCl2 solution added in a 1/1 (50 mL) and shaken for 24 hours.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; air dried soil to final humidity of 2.1%; moist soil final humidity 18.1%
Media, Recovery, and Statistics	Not reported; 92.77%; 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	blank included; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not Reported; 1.0+/-0.1% DC 344 available (250 ppm-dry soil); 0% DC 344 available (moist soil); 5 replicates/soil and 2 blank analyzed.; 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 by name and CASRN.
Metric 2:	Test Substance Purity	Medium	The test substance source was reported; however, this is a mixture of chemicals.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Concurrent blanks were included, but details were not reported.

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Study Citation:	Dow Corning, (1988). Final report on studies to investigate silicones availability from soil with cover letter dated 04/20/94.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5885304

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was not clearly described.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	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	Low	Details regarding sampling methods of the outcome were not fully reported, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	It is unclear whether the test chemical is absorbed or volatilized.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described.
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.

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Study Citation:	Dow Corning, (1988). Final report on studies to investigate silicones availability from soil with cover letter dated 04/20/94.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5885304

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

Study Citation:	Dow Corning, (1988). Final report on studies to investigate silicones availability from soil with cover letter dated 04/20/94.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5885304

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning; Liquid; 77% Notes: Silicone DC 344: 77% Octamethylcyclotetrasiloxane, 22% decamethylcyclopentasiloxane, 0.2% cyclosiloxanes, di-Me (cyclopolydimethylsiloxane), <0.1% hexamethylcyclotrisiloxane
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; Not Reported; 5
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; adsorption phase: soil and test chemical were layered for a final 50 g of soil and 1000 ppm of DC 344, material was left for 24 hours. Desorption: CaCl2 solution added in a 1/1 (50 mL) and shaken for 24 hours.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; air dried soil to final humidity of 2.1%; moist soil final humidity 18.1%
Media, Recovery, and Statistics	Not reported; 99.20%; 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	blank included; Not Reported; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Not Reported; 13+/-0.76% DC 344 available (1000 ppm-dry soil); 0% DC 344 available (moist soil); 5 replicates/soil and 2 blank analyzed.; 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 by name and CASRN.
	Metric 2:	Test Substance Purity	Medium	The test substance source was reported; however, this is a mixture of chemicals.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Concurrent blanks were included, but details were not reported.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				

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Study Citation:	Dow Corning, (1988). Final report on studies to investigate silicones availability from soil with cover letter dated 04/20/94.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5885304

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Medium	The test method was not clearly described.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions; however, sufficient data were reported to determine that the deviations and omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	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	Low	Details regarding sampling methods of the outcome were not fully reported, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	It is unclear whether the test chemical is absorbed or volatilized.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described.
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:	Dow Corning, (2007). Cyclic methylsiloxanes (cVMS) materials in surface sediments and cores for Lake Ontario.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7002442

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)
Solvent, Reactivity, Storage, Stability	acetonitrile; NR; NR; NR
Radiolabel, Source, State, Purity	isotopically labeled 13C-D4, 13C-D5, and 13C-D6.; Dow Corning; NR; Optima grade Notes: none
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; Room temperature; NR; none
Matrix, Clay Silts and Organic Carbon, and CEC	other; Clay 48%, Silt 39%, Sand 13%; NR
Bulk Density and Matrix Details	1.1 g/cm3; LOI organic matter 12.7%
Media, Recovery, and Statistics	Reference sediment from Sanford Lake; 99 - 107%; 12.3 +/- 2.9 ng
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; in-situ sediment samples, steady-state assumed; in-situ sediment samples, steady-state assumed
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Kd, particle water distribution coefficient; NR; NR; NR
Partition Coefficient Type and Partition Coefficient Results	Koc in sediment; 4.2
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; mean log Koc 4.2
Mass Balance	99 - 107% across all compounds

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	High	A concurrent blank group was included and results were within the ranges specified for test validity.
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:	Dow Corning, (2007). Cyclic methylsiloxanes (cVMS) materials in surface sediments and cores for Lake Ontario.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7002442

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcomes of interest.
	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 (if applicable) were reported in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, 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 NEED TO FIX

Study Citation:	Gatidou, G., Arvaniti, O. S., Stasinakis, A. S., Thomaidis, N. S., Andersen, H. R. (2016). Using mechanisms of hydrolysis and sorption to reduce siloxanes occurrence in biogas of anaerobic sludge digesters. Bioresource Technology 221:205-213.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5375770

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; other: Batch experiments: sorption to sludge
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (Seelze, Germany); NR; >95%
Sampling Frequency, Sampling Details, and Number of Replicates	samples collected at end of experiment; additional detail cited to supporting document; triplicate runs performed
pH, Test Temperature, Buffer, and Test Details	7.0±0.1; 35.0±1.0°C; phosphate buffer; Test concentrations: 50, 75, 100, 125, 150, and 200 µg/L; flasks covered with foil to prevent photodegradation
Matrix, Clay Silts and Organic Carbon, and CEC	other; characteristics in supporting document; not reported
Bulk Density and Matrix Details	not reported; frieze-dried mesophilic anaerobically digested sludge taken from the Athens STP (Greece); sterilized prior to test
Media, Recovery, and Statistics	aqueous phase; 67%; RSD ≤13%
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	Sludge-water distribution coefficients (L/kg); average log Kd = 2.32±1.85
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	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Controls were included.
	Metric 4:	Test Substance Stability	High	The test substance preparation was reported.

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Study Citation:	Gatidou, G., Arvaniti, O. S., Stasinakis, A. S., Thomaidis, N. S., Andersen, H. R. (2016). Using mechanisms of hydrolysis and sorption to reduce siloxanes occurrence in biogas of anaerobic sludge digesters. Bioresource Technology 221:205-213.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5375770

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to 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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	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; low analytical recovery reported 67%.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 95.7 ug/L (initial loading 464 ug/m2); loaded onto ammonium hydrogen sulfate aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	ammonium hydrogen sulfate (NH3HSO4) pulverized into fine particles; 1540 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium not reached; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 63% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.076, 0.071 and 0.071, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 0.09 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	Uninformative	Equilibrium was not established or reported preventing meaningful interpretation of study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 361 ug/L (initial loading 479 ug/m2); loaded onto carbon black aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	carbon black (C) pulverized into fine particles; 25.1 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 87% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.019, 0.118 and 0.079, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 1.2 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 99.6 ug/L (initial loading 439 ug/m2); loaded onto ammonium sulfate aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	ammonium sulfate ((NH3)2SO4) pulverized into fine particles; 817 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 58% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.034, 0.037 and 0.030, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 1.6 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 91.2 ug/L (initial loading 119 ug/m2); loaded onto hematite aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	hematite (Alpha-Fe2O3) pulverized into fine particles; 151 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 50% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.041, 0.091 and 0.055, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 50.4 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 273.6 ug/L (initial loading 381 ug/m2); loaded onto kaolinite aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h, sampling time 1, 12, 30, 60 min
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	Kaolinite (Al2Si2O5(OH)4) aerosol sized (3.2 um) 59 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 90% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.080, 0.052 and 0.037, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 23.4 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 101.7 ug/L (initial loading 151 ug/m2); loaded onto mica aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	mica (KAl2(AlSi3O10)(OH)2) pulverized into fine particles; 172 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 35% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.053, 0.025 and 0.025, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 5.0 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 99.6 ug/L (initial loading 130 ug/m2); loaded onto quartz aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	quartz (SiO2) aerosol sized (5 um); 152 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 52% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.088, 0.044 and 0.038, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 3.5 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21$\pm$1°C; not applicable; Initial D4 concn 91.8 ug/L (initial loading 11 ug/m2); loaded onto sea salt aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	sea salt (NaCl) pulverized into fine particles; 1302 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 40% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.203, 0.114 and 0.100, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 1.0 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Sorption/desorption on atmospheric aerosols
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	No; Dow Corning Co., MI; Liquid; 99% Notes: D4 Injected into a bag containing clean air whose relative humidity was pre-adjusted to 30% and vaporized by gently heating.
Sampling Frequency, Sampling Details, and Number of Replicates	sorption: 1 min, 12 min, 30 min, 2 hour, 24 hour, 48 hour; desorption: 1, 12, 30, 60 min; Gas-phase concentrations were measured at designated times using 10mL aliquots of gas sample filtered through a 0.22-μm PTFE filter; Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; 21±1°C; not applicable; Initial D4 concn 389.1 ug/L (initial loading 198 ug/m2); loaded onto illite aerosols at 30% relative humidity, shaken to disperse particles. Desorption: gas-phase D4 diluted by factor of 2 and equilibrated 1-2 h
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; not applicable; not applicable
Bulk Density and Matrix Details	not applicable; Relative humidity: 30%
Media, Recovery, and Statistics	illite (K,H3O)(Al,Mg,Fe)2(Si,Al)4O10((OH)2,(H2O)) pulverized into fine particles; 54.7 mg/L; Not reported; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; sorption equilibrium reached within 2 hours; equilibrated 1-2 hours
Reference Substance, Reference Substance Results, and Percent Adsorption	Control systems with no aerosols were included.; 5.3% loss at 26 hours and 7.0% loss at 48 hours probably due to wall effects (sorption and/or transformation) of the reactor and/or leakage from the sorption system.; approx. 77% (from figure)
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; The normalized root-mean-square error using Langmuir, Freundlich and Polanyi-Manes models were 0.095, 0.038 and 0.037, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	aerosol-air partition coefficients (Kp = Gamma-eq/Ceq; 3.8 L/m2
Partition Coefficient Phase and Partition Coefficient Results	other; two distinct processes; rapid initial sorption then slower sorption until equilibrium is reached.
Mass Balance	Solid-phase concentrations were calculated based on the mass balance.

EVALUATION

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

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Study Citation:	Kim, J., Xu, S. (2016). Sorption and desorption kinetics and isotherms of volatile methylsiloxanes with atmospheric aerosols. Chemosphere 144:555-563.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3007901

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	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	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:	Kozerski, G. E., Xu, S., Miller, J., Durham, J. (2014). Determination of soil-water sorption coefficients of volatile methylsiloxanes. Environmental Toxicology and Chemistry 33(9):1937-1945.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833861

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; other: similar to OECD 106
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Dow Corning; NR; 96% or greater by GC. Notes: 13C-enriched and natural isotopic abundance D4
Sampling Frequency, Sampling Details, and Number of Replicates	time intervals between 0.5 hour and 30 hour; moist test soil and CaCl2 were added to test vessels The soil–water mixtures were conditioned overnight on a rotational mixer; spiked with [13C]-D4.; 6 concentrations with 2 replicates each
pH, Test Temperature, Buffer, and Test Details	5.5-8.3; 24.4-24.8°C; Not reported; Experiments conducted in the dark inside an incubator.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; a silt loam (soil 164), a sandy loam (soil 248), and a sandy clay loam/sandy loam (soil 282) having organic carbon contents from 2% to 5.5% (% w/w); not reported (data may be in supplemental)
Bulk Density and Matrix Details	not reported (data may be in supplemental); silt loam (soil 164); sandy loam (soil 248), sandy clay loam/sandy loam (soil 282) details in supplemental data
Media, Recovery, and Statistics	soil; 89-102%; Generally, recoveries decreased slightly with increasing equilibration time (kinetics experiments) and decreasing organic carbon content.; +/-7%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; >/= 97% sorption within 1 hour; slower uptake until equilibrium at 16-24 hours; equilibrium was attained rapidly, essentially constant from the first sampling time at 0.5 h or 1 h through the final desorption sampling at 30 hour; more detail in supplemental data.
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; 496; 335; 1080 for silt loam; sandy loam; and sandy clay loam/sandy loam, respectively
Partition Coefficient Type and Partition Coefficient Results	Log Koc for silt loam; sandy loam; and sandy clay loam/sandy loam, respectively; 4.17; 4.22; 4.27
Partition Coefficient Phase and Partition Coefficient Results	soil-water; mean log Koc 4.22+/-0.05
Mass Balance	89-102% (specifics in supplemental data)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank group was included and results were within the ranges specified for test validity.

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Study Citation:	Kozerski, G. E., Xu, S., Miller, J., Durham, J. (2014). Determination of soil-water sorption coefficients of volatile methylsiloxanes. Environmental Toxicology and Chemistry 33(9):1937-1945.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833861

			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 and the target chemical was tested at concentrations below its aqueous solubility.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
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 outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, 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				

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Study Citation:	Kozerski, G. E., Xu, S., Miller, J., Durham, J. (2014). Determination of soil-water sorption coefficients of volatile methylsiloxanes. Environmental Toxicology and Chemistry 33(9):1937-1945.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833861

			EVALUATION	
Domain		Metric	Rating	Comments
	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

* Related References: ECHA rating: 1

Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7289207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; other: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65 x 10^8 Bq/g); Prepared at Dow Corning; NR; 99.7% (by HPLC) Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	1, 3, 7, 24, 31, 48, 72, 96, and 168 h; NR; duplicate
pH, Test Temperature, Buffer, and Test Details	NR; NR; 0.01 M CaCl2; NR
Matrix, Clay Silts and Organic Carbon, and CEC	sandy clay loam; 2.9% OC, 55% sand, 21% silt, 24% clay; 12.4 cmol/ Kg
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	Soil; NR; NR
Transformation Products, Equilibrium	NR; NR; NR
Adsorption Details, and Equilibrium Desorption Details	
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	Kd; 0.1 L/kg; corresponds to a Koc of 7 L/ Kg; NR
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	NR; NR
Partition Coefficient Phase and Partition Coefficient Results	NR; NR
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 purity was reported by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	Medium	Some concurrent control group details 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.

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Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7289207

EVALUATION

Domain	Metric		Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	The test inoculum was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Confounding variables were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)
Solvent, Reactivity, Storage, Stability	NR; NR; Freezer; stable
Radiolabel, Source, State, Purity	13C; Dow Corning Corp. MI; Liquid; 99.8% by GC-FID Notes: 13C-D4: Lot #: LL084732; Expiration Date: 5-11-2011
Sampling Frequency, Sampling Details, and Number of Replicates	0.5, 1, 2, 4, 6, 24, 30 hour; soil:solution determined in parallel; soil extraction with hexane; headspace solvent micro-extraction for solution; duplicate @ each sample time
pH, Test Temperature, Buffer, and Test Details	soil: 6.6; supernatant: 6.44-7.11; 24.8±0.1°C; 0.01 M CaCl2; blanks included (soil/solution no test substance)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 22% Clay/56% silt/22% sand/3.4% organic carbon; 18.0 meq/100g
Bulk Density and Matrix Details	890 g/L; 1:10; 1:20; 1:50 soil:solution ratios
Media, Recovery, and Statistics	0.01 M CaCl2; aqueous: 100%; soil: 98.4%; coefficient of variation: aqueous: 3.4%; soil: 5%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; equilibrium was reached rapidly; 1:20 soil:solution ratio at 24 hours: Kd 574; log Koc 4.22; Mass balance: 88.6%
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not Reported; 24 hours: 97.6%; 96.2%; 90.6% at 1:10; 1:20; 1:50 soil:solution ratio, respectively.
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc at 24 hours; 4.13; 4.17; 4.19; at 1:10; 1:20; 1:50 soil:solution ratio, respectively.; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kd at 24 hours; 463: 504; 522
Partition Coefficient Phase and Partition Coefficient Results	other; at 1:10; 1:20; 1:50 soil:solution ratio, respectively.
Mass Balance	average: 101.0%; 94.7%; 92.7% at 1:10; 1:20; 1:50 soil:solution ratio, 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	High	A blank group was included
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				

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Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)
Solvent, Reactivity, Storage, Stability	NR; NR; Freezer; stable
Radiolabel, Source, State, Purity	13C; Dow Corning Corp. MI; Liquid; 99.8% by GC-FID Notes: 13C-D4: Lot #: LL084732; Expiration Date: 5-11-2011
Sampling Frequency, Sampling Details, and Number of Replicates	0.5, 1, 2, 4, 6, 24, 30 hour; soil:solution determined in parallel; soil extraction with hexane; headspace solvent micro-extraction for solution; duplicate @ each sample time
pH, Test Temperature, Buffer, and Test Details	soil: 5.5; supernatant: 6.10-6.71; 24.8±0.1°C; 0.01 M CaCl2; blanks included (soil/solution no test substance)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 15% Clay/13% silt/72% sand/2.0% organic carbon; 9.9 meq/100 g
Bulk Density and Matrix Details	966; 1:20 soil:solution ratios
Media, Recovery, and Statistics	0.01 M CaCl2; aqueous: 100%; soil: 98.4%; coefficient of variation: aqueous: 3.4%; soil: 5%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; equilibrium was reached rapidly; at 24 hours: Kd 384; log Koc 4.28; Mass balance: 84%
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not Reported; 24 hours: 95%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc at 24 hours; 4.19; Not Reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kd at 24 hours; 308
Partition Coefficient Phase and Partition Coefficient Results	other; Not Reported
Mass Balance	average: 92.4%

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	A blank group was included
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.

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Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome 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 (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	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 consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; OECD Guideline 106 (Adsorption - Desorption Using a Batch Equilibrium Method)
Solvent, Reactivity, Storage, Stability	NR; NR; Freezer; stable
Radiolabel, Source, State, Purity	13C; Dow Corning Corp. MI; Liquid; 99.8% by GC-FID Notes: 13C-D4: Lot #: LL084732; Expiration Date: 5-11-2011
Sampling Frequency, Sampling Details, and Number of Replicates	0.5, 1, 2, 4, 6, 24, 30 hour; soil:solution determined in parallel; soil extraction with hexane; headspace solvent micro-extraction for solution; duplicate @ each sample time
pH, Test Temperature, Buffer, and Test Details	soil: 8.3; supernatant: 6.91-7.65; 24.8±0.1°C; 0.01 M CaCl2; blanks included (soil/solution no test substance)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 20% Clay/19% silt/61% sand/5.5% organic carbon; 20.4 meq/100g
Bulk Density and Matrix Details	920; 1:20 soil:solution ratios
Media, Recovery, and Statistics	0.01 M CaCl2; aqueous: 100%; soil: 98.4%; coefficient of variation: aqueous: 3.4%; soil: 5%
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; equilibrium was reached rapidly; at 24 hours: Kd 1240; log Koc 4.35; Mass balance: 89.2%
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not Reported; 24 hours: 98%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	log Koc at 24 hours; 4.25; Not Reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	Kd at 24 hours; 970
Partition Coefficient Phase and Partition Coefficient Results	other; Not Reported
Mass Balance	average: 95.0%

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	A blank group was included
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.

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Study Citation:	Miller, J., Kozerski, G. E. (2007). Soil–water distribution of octamethylcyclotetrasiloxane (D4) using a batch equilibrium method.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6987894

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome 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 (if applicable) were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	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 consistent with related physical chemical properties.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833944

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Field study; sediment-water partitioning; Not Reported
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Industrial, residential, and onsite treatment sites across the United States in; NA; NA
Sampling Frequency, Sampling Details, and Number of Replicates	Twice per site, between April and December 2016; Surface water and sediment grab samples were collected near WWTP effluent outfalls, within the mixing zones, of WWTP sites receiving industrial D4 processor or formulator waste; residential waste; or onsite treatment at manufacturing/processing/or formulation sites.; 7
pH, Test Temperature, Buffer, and Test Details	NR; monthly averages for previous years reported in the supplemental information; NR; monthly averages for previous years reported in the supplemental information; NA; Field study at multiple sites, reported as summaries of site type.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NA; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NA; Field study; Field study
Reference Substance, Reference Substance Results, and Percent Adsorption	NA; NA; NA
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NA; Not Reported; Surface water median concentration: 0.0800 ug/L (80 ng/L, onsite treatment), 0.0200 ug/L (20 ng/L, industrial), 0.0200 ug/L (20 ng/L, residential)Sediment median concentration: 7410 ng/g TOC (onsite treatment), 48.4 ng/g TOC (industrial), 201 ng/g TOC (residential); Not Reported
Partition Coefficient Type and Partition Coefficient Results	Kd; Kd = 92.6 L/g TOC (onsite treatment), 2.42 L/g TOC (industrial), 10.1 L/g TOC (residential)
Partition Coefficient Phase and Partition Coefficient Results	sediment/water; Not Reported
Mass Balance	NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for field studies.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for field studies.
	Metric 4:	Test Substance Stability	High	Sample preparation and storage details were reported in the supplemental information.

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833944

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The study was a monitoring study not specifically designed to determine partition information; site specific results were not reported. Values were reported as summaries for the site type and partition coefficients calculated from this data may not be accurate.
	Metric 6:	Testing Conditions	Medium	Monthly averages for previous years of some parameters like pH and TOC are reported in the supplemental information.
	Metric 7:	Testing Consistency	High	Samples were collected and processed consistently.
	Metric 8:	System Type and Design	Low	Samples were collected in the mixing zone of a WWTP outflow. D4 inputs are therefore variable and likely not in equilibrium.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness. Study authors did not design study to focus on partitioning behavior.
	Metric 12:	Test Substance Purity	High	The analytical method was appropriate, detailed plans for method validation were reported in the supplemental information.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Data are reported as summaries of site type and not site-specific, which reduces their usefulness in determining partitioning behavior.
	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	Low	Site-specific data were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Reviewer calculated partition coefficients were based on median values reported across several different sites. Because the data were not site-specific, they may not be representative of partitioning behavior. Further, mixing zone sites from WWTP outfalls were sampled, which were likely not at equilibrium.
	Metric 18:	QSAR Models	N/A	Not applicable to this study type.

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Study Citation:	Nusz, J. B., Fairbrother, A., Daley, J., Burton, G. A. (2018). Use of multiple lines of evidence to provide a realistic toxic substances control act ecological risk evaluation based on monitoring data: D4 case study. Science of the Total Environment 636:1382-1395.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833944

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

Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2015). Organic carbon/water and dissolved organic carbon/water partitioning of cyclic volatile methylsiloxanes: Measurements and polyparameter linear free energy relationships. Environmental Science & Technology 49(20):12161-12168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3351475

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	none; Sigma-Aldrich Sweden AB, Stockholm, Sweden; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; transferred into test tubes, extracted and analyzed; 4
pH, Test Temperature, Buffer, and Test Details	7; Not reported; Not reported; sediment solution was spiked; vortexed; left to equilibrate; centrifuged and supernatant was transferred to GC vial.
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR/NR/NR/6.4%; Not reported
Bulk Density and Matrix Details	Not reported; freshwater lake sediment; dried and pulverized; analyzed for TOC
Media, Recovery, and Statistics	aqueous; 82.3%; +/-6.4% based on 4 replicates
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Equilibration time overnight
Reference Substance, Reference Substance Results, and Percent Adsorption	PCB 28; PCB 52; PCB 153; % recovery 77.8+/-3.1; 82.0 +/-6.1; 78.5+/-4.4; Not reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; Not reported; Not Reported; Not reported
Partition Coefficient Type and Partition Coefficient Results	log Koc; 5.06+/-0.08
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; calculated using concentration in all phases.
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 source of the test substance was reported.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.

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Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2015). Organic carbon/water and dissolved organic carbon/water partitioning of cyclic volatile methylsiloxanes: Measurements and polyparameter linear free energy relationships. Environmental Science & Technology 49(20):12161-12168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3351475

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported 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 within expected range and 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:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2015). Organic carbon/water and dissolved organic carbon/water partitioning of cyclic volatile methylsiloxanes: Measurements and polyparameter linear free energy relationships. Environmental Science & Technology 49(20):12161-12168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3351475

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; other
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	none; Sigma-Aldrich Sweden AB, Stockholm, Sweden; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Not reported; transferred into test tubes, extracted and analyzed; 4
pH, Test Temperature, Buffer, and Test Details	7; Not reported; Not reported; Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not applicable; Not reported
Bulk Density and Matrix Details	Not reported; DOC extracted from Aldrich humic acid in aqueous solution
Media, Recovery, and Statistics	aqueous; 86.7%; +/-5.2% based on 4 replicates
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not Reported
Reference Substance, Reference Substance Results, and Percent Adsorption	PCB 28; PCB 52; PCB 153; % recovery 75.7+/-3.9; 80.3 +/-5.6; 76.3+/-3.7; 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 Kdoc; 5.05+/-0.07
Partition Coefficient Phase and Partition Coefficient Results	other; calculated using concentration aqueous phase and amount of dissolved organic carbon.
Mass Balance	Not reported

EVALUATION

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

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Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2015). Organic carbon/water and dissolved organic carbon/water partitioning of cyclic volatile methylsiloxanes: Measurements and polyparameter linear free energy relationships. Environmental Science & Technology 49(20):12161-12168.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3351475

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	Metric 8:	System Type and Design	High	Equilibrium was established. The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported 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 within expected range and 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:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2017). Temperature Dependence of the Organic Carbon/Water Partition Ratios (K-oc) of Volatile Methylsiloxanes. Environmental Science & Technology Letters 4(6):240-245.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3985559

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; other: Log Koc determination by fugacity model of purge-and-trap system
Solvent, Reactivity, Storage, Stability	Hexane; Hydrolysis DT50 = 3.7 d at pH 7, 25 deg C; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich, Sweden AB, Stockholm, Sweden; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	8 time points over 4 days; Purge-and-trap system continuously stirred and headspace purged with nitrogen and filtered through an SPE column, chemicals purged from headspace collected on second SPE and eluted with DCM; Bulk sediment and water also analyzed; 3
pH, Test Temperature, Buffer, and Test Details	Not reported; 5, 10, 15, and 25 deg C; Not reported; 6 mg dry sediment spiked with 15000 ng/uL test substance (60 ng/mg in sediment, 40% spiking efficiency), left to equilibrate over night. Sediment submerged in 300 mL Milli-Q water
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; 6.4% organic carbon content; Not reported
Bulk Density and Matrix Details	Not reported; Sediment collected from Lake Angen, Sweden
Media, Recovery, and Statistics	DI water; 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	1,4-Dichlorobenzene and alpha-hexachlorocyclohexane; 1,4-DCB Log Koc = 2.80, 2.77, 2.87, 2.91, 2.95a-HCH Log Koc= 3.41, 3.41, 3.41, 3.41, 3.41, at 25, 21, 15, 10, and 5 deg C; Not Reported
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Log Koc; Log Koc = 5.17 {From Table 1}Log Koc (5-25 deg C) = 6.38 (5 deg C), 5.34 (10 deg C), 5.28 (15 deg C), and 5.20 (25 deg C) {From Table S11); I(t) = (100 - b(t))e^(-kt) + b(t)I(t) = chemical in bulk waterk = volatilization rate constantb(t) = chemical not available for volatilization due to sorption/degradationb(t) = B(1 - e^(-k_b t))B = max % non-available fraction; Not Reported
Partition Coefficient Type and Partition Coefficient Results	Not Reported; Not Reported
Partition Coefficient Phase and Partition Coefficient Results	sediment-water; Not Reported
Mass Balance	109.9%

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Solid-less controls were not reported.
	Metric 4:	Test Substance Stability	Medium	Test substance preparation but not storage were reported.

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Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2017). Temperature Dependence of the Organic Carbon/Water Partition Ratios (K-oc) of Volatile Methylsiloxanes. Environmental Science & Technology Letters 4(6):240-245.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3985559

			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	Low	Some sediment and water characteristics were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across replicates and study groups.
	Metric 8:	System Type and Design	High	The system was allowed to equilibrate.
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.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and frequency for volatility and sorption was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty and variability were 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 not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The model for sorption accounting for volatility and hydrolytic loss was described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were in good agreement with previous studies, but broader conclusions cannot be drawn without sediment and water characteristics. The study focused on fugacity model verification than solely sorption.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — Medium

Study Citation:	Panagopoulos, D., Kierkegaard, A., Jahnke, A., Macleod, M. (2016). Evaluating the Salting-Out Effect on the Organic Carbon/Water Partition Ratios (K-OC and K-DOC) of Linear and Cyclic Volatile Methylsiloxanes: Measurements and Polyparameter Linear Free Energy Relationships. Journal of Chemical and Engineering Data 61(9):3098-3108.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3985560

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	no; experimental; other: Method cited to Panagopoulos et al., Environ. Sci. Technol. 2015, 49, 12161−12168.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich Sweden AB (Stockholm, Sweden); NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; Not Reported; 5 replicates
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; sampled at 2, 4, 21, 29 and 48 h
Matrix, Clay Silts and Organic Carbon, and CEC	other; 6.4% organic carbon; NR
Bulk Density and Matrix Details	NR; Sediment collected from Lake Angen Sweden was spiked with test compound and immersed into 300 mL of continuously stirred water in the surge-and-trap system
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NR; NR; NR; NR
Partition Coefficient Type and Partition Coefficient Results	log KOC; 5.20 (standard error=0.10)
Partition Coefficient Phase and Partition Coefficient Results	Lake Ången sediment and water; Headspace of the system was purged with a stream of nitrogen (25±0.5 mL/min, filtered through an ENV+ column) KDOC =5.04 (SE 0.14), using Suwannee River fulvic acid, also reported in this study.
Mass Balance	71.4% to 100% for cVMS

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 material source was reported but purity was not.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.

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Study Citation:	Panagopoulos, D., Kierkegaard, A., Jahnke, A., Macleod, M. (2016). Evaluating the Salting-Out Effect on the Organic Carbon/Water Partition Ratios (K-OC and K-DOC) of Linear and Cyclic Volatile Methylsiloxanes: Measurements and Polyparameter Linear Free Energy Relationships. Journal of Chemical and Engineering Data 61(9):3098-3108.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3985560

			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 result.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples or study groups were not reported, but these discrepancies were not likely to have a substantial impact on study results.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
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	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	Medium	Sampling details were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	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.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results appear reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Panagopoulos, D., Kierkegaard, A., Jahnke, A., Macleod, M. (2016). Evaluating the Salting-Out Effect on the Organic Carbon/Water Partition Ratios (K-OC and K-DOC) of Linear and Cyclic Volatile Methylsiloxanes: Measurements and Polyparameter Linear Free Energy Relationships. Journal of Chemical and Engineering Data 61(9):3098-3108.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	3985560

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

Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1999). Mineralization of dimethylsilanediol by microorganisms isolated from soil. Environmental Toxicology and Chemistry 18(9):1913-1919.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7289187

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; other: NR
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C DMSD (specific activity of 275 uCi/g); synthesized for study; NR; 99.9% Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	0, 0.5, 1, 3, 22, and 46 h; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; Room temperature; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	loam; 39% sand, 44% silt, 17% clay, 4.3% OC; NR
Bulk Density and Matrix Details	NR; Cohoctah soil obtained from the Chippewa Nature Center in Midland Michigan
Media, Recovery, and Statistics	Water; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NR; NR; NR; NR
Partition Coefficient Type and Partition Coefficient Results	Kd; 0.2 L/Kg
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; The sorption constant of DMSD was estimated by dividing the amount of DMSDsorbed (5%) to 3 g of soil by the amount of DMSD (95%) remaining in 10 ml of water.
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	High	Test material source was reported and purity reported by analytical means.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Study controls were reported.
Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions			

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Study Citation:	Sabourin, C. L., Carpenter, J. C., Leib, T. K., Spivack, J. L. (1999). Mineralization of dimethylsilanediol by microorganisms isolated from soil. Environmental Toxicology and Chemistry 18(9):1913-1919.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	7289187

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	The test conditions were consistent.
	Metric 8:	System Type and Design	High	It was noted that equilibrium was established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	High	The test inoculum was reported.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination High

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; not specified; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; NR
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption	NR; Using 3.55 and 4.36 as values for log Koc and 2% for organic content of the soil. the estimated Kd is 71 and 458, which indicates low mobility with respect to runoff water or seepage into ground water.; Not Reported; NR
Desorption Type	
Partition Coefficient Type and Partition Coefficient Results	NR; NR
Partition Coefficient Phase and Partition Coefficient Results	NR; NR
Mass Balance	NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to the study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study type.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Unclear how the values were obtained; values were estimated.
	Metric 18:	QSAR Models	Uninformative	Unclear how the values were obtained; values were estimated.

Overall Quality Determination — Uninformative

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; not specified; Not Reported
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR Notes: NR
Sampling Frequency, Sampling Details, and Number of Replicates	NR; NR; NR
pH, Test Temperature, Buffer, and Test Details	NR; NR; NR; NR
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; NR; NR
Bulk Density and Matrix Details	NR; NR
Media, Recovery, and Statistics	NR; NR; calculated based on solubility using equation 4-5 in Lyman et al. (1982)
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	NR; NR; NR
Reference Substance, Reference Substance Results, and Percent Adsorption	NR; NR; NR
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	NR; When solubility is 0.05 mg/L, the corresponding log Koc is 4.36.; Not Reported; NR
Partition Coefficient Type and Partition Coefficient Results	NR; NR
Partition Coefficient Phase and Partition Coefficient Results	NR; NR
Mass Balance	NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified.
Metric 2:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study type.
Metric 6:	Testing Conditions	N/A	The metric is not applicable to the study type.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	5889398

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	N/A	The metric is not applicable to the study type.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Uninformative	Values are estimated and calculated; calculations are not clearly described.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Values are estimated and calculated; calculations are not clearly described.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: Cites Lyman et al. 1982 (HERO ID 7421)

Study Citation:	Wang, D. G., Aggarwal, M., Tait, T., Brimble, S., Pacepavicius, G., Kinsman, L., Theocharides, M., Smyth, S. A., Alaee, M. (2015). Fate of anthropogenic cyclic volatile methylsiloxanes in a wastewater treatment plant. Water Research 72:209-217.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833855

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Removal of D4 from a municipal wastewater treatment plant; adsorption to sludge.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; WWTP samples containing D4; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	A WWTP, receiving 70% of its wastewater from homes and 30% from businesses, was sampled in January and March 2011.; WWTP grab samples were collected of primary and waste activated sludge (on-line samplers had high backgrounds); Not reported
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; mean concentrations of D4 in primary sludge = 1.36 µg/g and waste activated sludge = 1.69 µg/g
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; WWTP used activated sludge process including intake screens, grit tanks, primary and secondary settling tanks, fine-bubble aeration tanks, and an outfall pipe.
Media, Recovery, and Statistics	Wastewater; Not reported; Not reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not reported; Not reported; Not reported
Reference Substance, Reference Substance Results, and Percent Adsorption	Not reported; Not reported; Sludge removal efficiencies were about 18%; mass in primary sludge and waste activated sludge accounted for ca. 29% during high flow; volatilization in activated sludge treatment accounted for 78% of loss
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 = Cp/Cw (partition coefficient between aqueous and particle phase); Kd,p (primary effluent concentrations divided the primary sludge concentrations) and Kd,AS (effluent concentrations divided the waste activated sludge concentrations); results in supporting document
Partition Coefficient Phase and Partition Coefficient Results	solids-water in activated sewage sludge; Not reported
Mass Balance	Approximate mass distribution in WWTP: primary sludge: 18%, waste activated sludge: 17%, total sludge: 29%, volatilization: 78%, effluent: 1%

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The test substance was identified in field samples using an appropriate analytical method.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not reported but were likely reported in the supporting information so the omission is unlikely to have an impact on the study results.

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Study Citation:	Wang, D. G., Aggarwal, M., Tait, T., Brimble, S., Pacepavicius, G., Kinsman, L., Theocharides, M., Smyth, S. A., Alaee, M. (2015). Fate of anthropogenic cyclic volatile methylsiloxanes in a wastewater treatment plant. Water Research 72:209-217.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833855

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	Details regarding the test sample preparation was provided in supporting information.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported in the study but were likely reported in the supporting information.
	Metric 7:	Testing Consistency	Medium	Testing consistency cannot be determined since testing conditions were not reported in the study; however, no inconsistencies were noted in the discussion so the omission is 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	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Concentrations were reported at each sampling point. The variability was acceptable and not likely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Several details, including partition coefficient results, were reported in the supporting information document.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination Medium

Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6836352

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; other: non-guideline: monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; samples stored in sealed glass vessels at 4C; Not Reported
Radiolabel, Source, State, Purity	13C-labeled D4 (Cambridge Isotope Laboratories, Andover, MA, USA); Sigma-Aldrich, St. Louis, MO, USA; WWTP samples (aqueous and solid); not specified
Sampling Frequency, Sampling Details, and Number of Replicates	Samples collected during July 2014, October 2014, and August 2015; 24h Composite samples were collected in glass tubes from primary and secondary effluents. Paper making processes - aqueous sample mean concentrations (µg/L) of D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, 28.0, 12.6, 3.65, 1.85, 6.75, and 0.078, respectively. WWTP processes - aqueous sample mean concentrations (µg/L) of D4 in influent of primary clarifier, effluent of primary clarifier, effluent of regulating tank, effluent of anaerobic tank, effluent of oxic tank, effluent of secondary clarifier, return sludge, excess sludge from secondary clarifier were 4.46, 4.19, 3.95, 5.30, 3.17, 1.14, 0.180, and 0.180, respectively. Paper making processes - solid sample mean concentrations (µg/g) of D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, 12.5E3, 6.52E3, 1.54E3, 645, 2.57E3, and 37.7, respectively. WWTP processes - solid sample mean concentrations (µg/g) of D4 in influent solids of primary clarifier, sludge of primary clarifier, sludge of anaerobic tank, sludge of oxic tank, return sludge, excess sludge from secondary clarifier were 3.01E3, 4.65E3, 516, 929, 1.61E3, and 1.61E3, respectively.; not specified
pH, Test Temperature, Buffer, and Test Details	pH of treatment steps: primary clarifier pH = 7.8−9.2, regulating tank pH = 6.8−7.1, anaerobic tank pH = 6.5−7.0, oxic tank pH = 6.9−7.2, and secondary clarifier pH = 6.9−7.1.; not specified; not specified; Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	other; TOC (g/kg) range in solid samples collected in July2014, October 2014, and August 2015- influent of primary clarifier 1.89-2.13, primary clarifier 1.80-2.05, anaerobic tank 1.46-1.84, oxic tank 1.29-1.56, and secondary clarifier 1.12-1.41.; not reported
Bulk Density and Matrix Details	not reported; aqueous and solid samples from papermaking wastewater treatment plant
Media, Recovery, and Statistics	Not Reported; Aqueous samples - recovery ca. 88-94%, solid samples - recovery ca. 89-94%; 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	Not Reported; Average solid-water partitioning coefficients (Kd) based on measured concentrations of solid and aqueous phases in the influent of primary clarifier, primary clarifier, anaerobic tank, oxic tank, and secondary clarifier were 645, 1112, 97, 293, and 1418, respectively. Apparent log Koc values (mean; TOC normalized): primary clarifier, primary clarifier, anaerobic tank, oxic tank, and secondary clarifier were 5.51, 5.77, 4.78, 5.32, and 6.04, respectively.
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Not Reported
Mass Balance	Not Reported

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Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6836352

			EVALUATION	
Domain		Metric	Rating	Comments
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	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.

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Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6836352

EVALUATION

Domain	Metric		Rating	Comments
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Xu, L., Shi, Y., Cai, Y. (2013). Occurrence and fate of volatile siloxanes in a municipal wastewater treatment plant of Beijing, China. Water Research 47(2):715-724.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833877

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; other: Removal of D4 in a municipal wastewater treatment plant; sorption to excess sludge.
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Domestic WWTP near Beijing City, China.; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Sampling periods were conducted in April and January 2011. 24h composite samples were collected every 2 hours from primary effluent (pretreatment) and secondary effluent (post treatment).; Aqueous and sludge-liquid samples were collected from a municipal WWTP; headspace extraction for water samples and acetone extraction of freeze dried sludge samples; Stored at 4°C before sampling within 48 hrs.; 13 water and 12 sludge
pH, Test Temperature, Buffer, and Test Details	Not reported; Not reported; Not reported; sorption to sludge in an activated sludge secondary treatment process (A2/O process: aerobic-anaerobic-oxic process)
Matrix, Clay Silts and Organic Carbon, and CEC	Not Reported; Not reported; Not reported
Bulk Density and Matrix Details	Not reported; Sludge: composite sludge-liquid samples from 2-secondary treatment processes; solids layer collected was the sludge sample
Media, Recovery, and Statistics	Wastewater: composite sludge-liquid samples from 2-secondary treatment processes; liquid layer was the aqueous sample; Recoveries of six compounds analyzed ranged from 75% to 93% at three spiked concentration levels (20, 50 and 200 ng/g,; 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	8 field blank samples during two sample events. Lab blank runs for every sample.; No contamination indicated from lab or field blanks.; Relative fractions of mass loss due to the adsorption to excess sludge in traditional A2O process: 29.4±2.8% and in reversed A2O process 19.0±1.3%
Adsorption Coefficient Type, Adsorption Coefficient Results, Adsorption Coefficient Results Comments, and Adsorption Desorption Type	Not reported; sorption to excess sludge relative to the total mass loss; Not reported; Water and sludge samples were collected from a municipal WWTP receiving 400,000 cubic meters of domestic wastewater.
Partition Coefficient Type and Partition Coefficient Results	partitioning coefficient (PC): ratio of concentration in activated sludge to concentration in overlying wastewater; 136-4869
Partition Coefficient Phase and Partition Coefficient Results	solids-water in activated sewage sludge; Aqueous, January 2011 (µg/L): 0.09-4.30Sludge, January 2011 (ng/g): 2.6E2-2.2E3Aqueous, April 2011 (µg/L): 0.05-4.04Sludge, April 2011 (ng/g): 2.6E2-2.3E3
Mass Balance	Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was identified in environmental samples using appropriate analytical methods.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blank controls were used.

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Study Citation:	Xu, L., Shi, Y., Cai, Y. (2013). Occurrence and fate of volatile siloxanes in a municipal wastewater treatment plant of Beijing, China. Water Research 47(2):715-724.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833877

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	High	The storage and preparation of the samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	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	The variability in the concentration measurements was reported and not likely to have an impact on the outcome assessment. No other confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The partitioning coefficients were reported as a range; detail in supporting document which was not publicly available.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental: QSAR; other: 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
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 Desorption Type	Not Reported; estimated log Koc = 6.59 (from log Kow); estimated log Koc = 6.98 (using KOC = b·KOW; where b = 0.41); single parameter quantitative structure−property relationship (QSPR); 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.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	Low	Detail regarding this metric were not reported in this review.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	Low	Detail regarding this metric were not reported in this review.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to the study.
	Metric 10:	Sampling Methods	N/A	Not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	Low	Limited details reported in this review.

Overall Quality Determination Low

* Related References: Reference cited: Karickhoff, S. W. Organic pollutant sorption in aquatic systems. J. Hydraul. Eng., ASCE 1984, 110, 707−735.

Study Citation:	Zhang, Y., Zeng, G., Shen, M., Tian, Y. (2018). Cyclic volatile methylsiloxanes in sediment, soil, and surface water from Dongting Lake, China. Journal of Soils and Sediments 18(5):2063-2071.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833820

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; other: non-guideline: monitoring study
Solvent, Reactivity, Storage, Stability	stock solutions prepared in n-hexane; NR; stock solutions stored in amber glass bottles at -4°C; NR
Radiolabel, Source, State, Purity	NR; Tokyo Chemical Industry (Wellesley Hills, MA, USA); NR; >97%
Sampling Frequency, Sampling Details, and Number of Replicates	samples collected in October 2016; Surface water and sediment samples from East Dongting Lake; the area is has intensive agricultural activity and industrial sites. Sediments collected at 15 sites, 13 surface water samples were collected from the same sites.; not applicable
pH, Test Temperature, Buffer, and Test Details	not reported; not specified; ambient; not applicable; field study
Matrix, Clay Silts and Organic Carbon, and CEC	other; Mean TOC in water = 31.56±24.24 mg/L, sediment = 101±20.29 mg/g; not reported
Bulk Density and Matrix Details	not reported; natural sediment
Media, Recovery, and Statistics	Surface lake water; Standard recovery = 90.4±18%; std dev 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 = [sediment]/[water]; Kd = 1.13; Concentration in water (13/13): mean = 48.16±20.10 ng/L (6.07-85.59); Concentration in sediment (15/15): mean = 54.40±85.53 ng/g (3.98-360.29).
Partition Coefficient Phase and Partition Coefficient Results	sediment:water; Value not reported by the authors. Calculated by SRC reviewer.
Mass Balance	not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source the test substance was reported; analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.

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Study Citation:	Zhang, Y., Zeng, G., Shen, M., Tian, Y. (2018). Cyclic volatile methylsiloxanes in sediment, soil, and surface water from Dongting Lake, China. Journal of Soils and Sediments 18(5):2063-2071.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833820

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.
	Metric 6:	Testing Conditions	Medium	Limited detail regarding sampling sites.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	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	The outcome of interest was not specifically addressed by the authors.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Average values from monitoring sites were used to estimate partitioning in environmental media.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not appplicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however, did not specifically address outcome of interest.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Zhi, L., Zhang, C., Xu, L., He, X., Cai, Y. (2018). Occurrence and profiles of methylsiloxanes and their hydrolysis product in aqueous matrices from the Daqing oilfield in China. Science of the Total Environment 631-632:879-886.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833872

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	no; experimental; other: water and sediment field measurements
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; field samples; NR; NR
Sampling Frequency, Sampling Details, and Number of Replicates	Paired surface water and sediment samples were collected from 41 lakes in Daqing, China (November 2015).; 8 from new oilfield area; 25 from old oilfield area; 8 from a reference area; some duplicates
pH, Test Temperature, Buffer, and Test Details	not applicable; not applicable; not applicable; Not Reported
Matrix, Clay Silts and Organic Carbon, and CEC	other; Not Reported; not applicable
Bulk Density and Matrix Details	not applicable; Not Reported
Media, Recovery, and Statistics	Not Reported; 89–96% for water and 92–96% for sediment; Not Reported
Transformation Products, Equilibrium Adsorption Details, and Equilibrium Desorption Details	Not Reported; field samples assumed equilibration; field samples assumed equilibration
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 Kd; 3.71-3.77 (D4-D6) for paired water-sediment samples collected from the old oilfield area.
Partition Coefficient Phase and Partition Coefficient Results	Not Reported; Reported concentrations: new oilfield area samples (mean; min; median; max; detection frequency): water: 1.85 ng/L; <LOQ; <LOQ; 13.7 ng/L; 25%; sediment: 8.18 ng/g; <LOQ; <LOQ; 30.8 ng/g; 38%; old oilfield area samples: water: 5.50 ng/L; <LOQ; <LOQ; 36.5 ng/L; 44%; sediment: 26.2 ng/g; <LOQ; 19.0 ng/g; 74.6 ng/g; 80%; reference area samples: water: 10.4 ng/L; <LOQ; 5.10 ng/L; 39.7 ng/L; 50%; sediment: 3.48 ng/g; <LOQ; 1.78 ng/g; 12.3 ng/g; 50%
Mass Balance	Not Reported

EVALUATION

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

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Study Citation:	Zhi, L., Zhang, C., Xu, L., He, X., Cai, Y. (2018). Occurrence and profiles of methylsiloxanes and their hydrolysis product in aqueous matrices from the Daqing oilfield in China. Science of the Total Environment 631-632:879-886.
OECD Harmonized Template:	Adsorption and Desorption
HERO ID:	6833872

			EVALUATION	
Domain		Metric	Rating	Comments
	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	Test conditions were consistent across samples.
	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	Medium	There was incomplete reporting of outcome assessment methods; however, such differences or absence of details were not likely to be severe or have a substantial impact on the study results.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported; however, the limitations were not likely to have a substantial impact on results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements were not specifically 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	High	The target chemical concentrations, extraction efficiency, percent recovery, or mass balance were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Kinetic calculations were not clearly described; however, detailed information may be retrievable in the supplementary data.
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:	Ann Arbor Technical Services,, Inc., (1989). Aquatic half-life of OMCTS (octamethylcyclotetrasiloxane) as referenced in 54 FR 819.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889425

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	0.08% v/v methanol; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; >99.9% w/w
Test Method Details, Test Condition Details, and Test Consistency Details	Volatilization rates (K^o: oxygen reaeration rate constant, K^c volatilization rate) from water at stirrer speeds ranging from 200 to 450 rpm; stirrer speeds 200, 250, 300, 350, 400 and 450 rpm; Not reported
System Type Design	Sealed 2L beaker
Sampling Frequency and Sampling Details	Not specified; At least 10 samples were collected in glass vials over the duration of the experiment.
Test Temperature	Not reported
Results Details	Average: K^v/K^o = 0.57±0.17; K^c volatilization rates (hr-1) ranged from 0.546 to 6.672, K^o rates (hr-1) ranged from 0.858 to 12.918 for water at stirrer speeds ranging from 200 to 450 rpm
Analytical Method and Analytical Details	Purge and trap/GC-FID (USEPA standard method 601 and 8010; changes noted); LOD: 0.5 ppb (limited by background contamination from OMCTS present in elastomeric equipment resulting in blank concentrations of 0.1-0.3 ppb)
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	Purity of the test substance was 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 likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details on applied target chemical concentrations were limited.
	Metric 6:	Testing Conditions	Low	There were several omissions in testing conditions.
	Metric 7:	Testing Consistency	Medium	Limited detail regarding this metric.
	Metric 8:	System Type and Design	Medium	Limited detail regarding this metric.

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Study Citation:	Ann Arbor Technical Services,, Inc., (1989). Aquatic half-life of OMCTS (octamethylcyclotetrasiloxane) as referenced in 54 FR 819.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889425

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	Limited detail regarding this metric.
	Metric 12:	Test Substance Purity	Medium	Limited detail regarding this metric.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited detail regarding this metric.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Limited detail regarding this metric.
	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

Study Citation:	Bletsou, A. A., Asimakopoulos, A. G., Stasinakis, A. S., Thomaidis, N. S., Kannan, K. (2013). Mass loading and fate of linear and cyclic siloxanes in a wastewater treatment plant in Greece. Environmental Science & Technology 47(4):1824-1832.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2555998

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; High-density polyethylene bottles and polyethylene bags; water samples filtered through glass-fiber filters and stored in the dark at -18 deg C; NR
Radiolabel, Source, State, Purity	NA; WWTP in Athens, Greece; Liquid and solid; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples collected from a WWTP in Athens, Greece, in order to determine removal efficiency.; HRT: 9 hoursSRT: 8 days; NR
System Type Design	Primary sedimentation, activated sludge process with biological nitrogen and phosphorus removal, and secondary sedimentation.
Sampling Frequency and Sampling Details	Samples collected on 7 consecutive days in April 2012; water samples filtered, aqueous and particulate phases analyzed.; 24-hr composite samples.
Test Temperature	NR
Results Details	Average total influent: 0.149 µg/L; Average total effluent: 0.129 µg/L No removal observed on an individual sample basis.
Analytical Method and Analytical Details	GC-MS with HP-5MS capillary column, in electron-impact ionization mode and selected ion monitoring; LOQ - 0.00011 - 0.040 µg/L in water and 0.0060 to 9.9 µg/g in sludge.; Wastewater samples extracted 3x with hexane, 1:1 hexane:DCM (v/v), 1:1 hexane:ethyl acetate (v/v); extracts concentrated on roto-evap, reconstituted in isooctane, evaporated under N2, and transferred to hexane; extraction recovery 60.6 - 134%
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The WWTP sample source was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical blanks were included.
	Metric 4:	Test Substance Stability	High	Sample 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	Medium	Some operational conditions of the WWTP were reported, other characteristics such as temperature and pH were not reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Not applicable.

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Study Citation:	Bletsou, A. A., Asimakopoulos, A. G., Stasinakis, A. S., Thomaidis, N. S., Kannan, K. (2013). Mass loading and fate of linear and cyclic siloxanes in a wastewater treatment plant in Greece. Environmental Science & Technology 47(4):1824-1832.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2555998

			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	Medium	Sampling methods were described very generally, frequency was acceptable but would not reflect potential seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty and variability in the data were addressed, no other notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; Extraction efficiency and limits of detection for the compounds studied were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical and kinetic calculations were not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable.
Overall Quality Determination			**High**	

Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6994688

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	not reported; pilot-scale municipal activated sludge; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; grab samples
Test Temperature	Not Reported
Results Details	86.4% removal; loss via volatilization and loss by adsorption onto sludge solids contributes approximately equally to the total removal
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 by name, structure and CASRN.
Metric 2:	Test Substance Purity	Medium	The test substance source and purity were not reported; however, the information may be available from cited reference.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	The metric is not applicable to the study type.
Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study type.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	Limited details on the test method were provided
Metric 6:	Testing Conditions	Uninformative	Testing conditions were not reported and data provided were insufficient to interpret results.
Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study type.
Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.
Domain 4: Test Organisms			

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Study Citation:	Brooke, D. N., Crookes, M. J., Gray, D., Robertson, S. (2009). Environmental risk assessment report: Octamethylcyclotetrasiloxane.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6994688

			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	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	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	Uninformative	There were sources of variability and uncertainty in the measurements and statistical techniques or between study groups resulting in serious flaws that make the study unusable.
	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	N/A	The metric is not applicable to the study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — Uninformative

* Related References: cited HERO ID: 6834039; Parker W J, Shi J, Fendinger N J, Monteith H D, and Chandra G, 1999, Pilot plant study to assess the fate of two volatile methyl siloxane compounds during municipal wastewater treatment. Environmental Toxicology and Chemistry, 18, 172–181.

Study Citation:	Cheng, Y., Shoeib, M., Ahrens, L., Harner, T., Ma, J. (2011). Wastewater treatment plants and landfills emit volatile methyl siloxanes (VMSs) to the atmosphere: Investigations using a new passive air sampler.. Environmental Pollution 159(10):2380-2386.
OECD Harmonized Template:	Miscellaneous
HERO ID:	784251

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Analytical surrogate: 13C-D4 (Moravek Biochemicals, Brea, CA, USA); Analytical standards: Gelest (Morrisville, PA, USA) and/or Sigma Aldrich (Oakville, ON, Canada); NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Passive air samplers were placed at two WWTPs and two landfills (located in Ontario, Canada) at ca. 2 meters above the water and/or ground surface; results were used to estimate emissions of D4 to air from these WWTPs and landfills.; Samplers were deployed up-wind at all locations; field blanks were included. Uptake profiles plateaued after ca. 21 days indicating equilibrium had been reached. The partition coefficient between the disk and air (KSIP-A) was calculated from the average air concentrations in low-volume air samples (1,030 ng/m3) and the amounts accumulated in the SIP disk during the plateau phase (106,000 ng/disk).kA: air-side mass transfer coefficient (calculated from the sampling rate and the surface area of the SIP disk).; two WWTPs and two landfills locations were evaluated
System Type Design	SIP-disk passive air samplers
Sampling Frequency and Sampling Details	not specified; Sampling was conducted bewteen July and September 2009 at WWTP#1, in November 2009 at WWTP#2, between June to August 2009 at both landfills. Samples and field blanks were stored in amber glass jars at -20C prior to analysis.
Test Temperature	Ambient
Results Details	SIP disk-air partition coefficient (KSIP-A) = 4.91E+5; log KSIP-A = 5.69; kA = 8.33E+1 m/day; sampling rate (Rf) = 3.1 m3/day.
Analytical Method and Analytical Details	Spiked disk samples underwent Soxhlet extraction followed by GC-MS analysis.; Instrument detection limit = 3ng/µL, method detection limit (accounting for field blanks) 7.35 ng/m3.
Transformation Products, Statistics, and Kinetics	not applicable; Reported statistics were presented where appropriate.; Emission rates (dominated by the aeration processes at WWTPs) were estimated to be 540 kg/yr (WWTP#1), 8 kg/yr (WWTP#2), 20 kg/yr (landfill#1), and 70 kg/yr (landfill#2).
Reference Substance and Reference Substance Results	Blank samples; D4 was detected in field blanks at a mean concentration of 148±72.9 ng; concentrations were <0.2% of the sample amounts

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported; analytical standards were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were included and accounted for in the results.
	Metric 4:	Test Substance Stability	High	Sample storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in reporting of the field conditions.

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Study Citation:	Cheng, Y., Shoeib, M., Ahrens, L., Harner, T., Ma, J. (2011). Wastewater treatment plants and landfills emit volatile methyl siloxanes (VMSs) to the atmosphere: Investigations using a new passive air sampler.. Environmental Pollution 159(10):2380-2386.
OECD Harmonized Template:	Miscellaneous
HERO ID:	784251

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	4 separate sites were analyzed; limited detail provided on each site
	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 outcomes of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were described.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Areas of uncertainty were discussed.
	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 appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Costa Dos Reis, L., Vidal, L., Canals, A. (2018). Determination of siloxanes in water samples employing graphene oxide/Fe3O4 nanocomposite as sorbent for magnetic solid-phase extraction prior to GC–MS. Journal of Separation Science 41(22):4177-4184.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833860

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	standards prepared in ACN; Not Reported; stock solutions stored in the dark at 4°C; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Sigma-Aldrich (St. Louis, MO, USA); Not Reported; 98%
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	Concentration of D4 in a Portuguese WWTP = 3.1±0.6 µg/L.
Analytical Method and Analytical Details	MSPE/GC–MS method; LOD = 0.003 µg/L; LOQ 0.01 µg/L
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

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

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Study Citation:	Costa Dos Reis, L., Vidal, L., Canals, A. (2018). Determination of siloxanes in water samples employing graphene oxide/Fe3O4 nanocomposite as sorbent for magnetic solid-phase extraction prior to GC–MS. Journal of Separation Science 41(22):4177-4184.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833860

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Uninformative	The assessment methodology did not address or report the outcome of interest (wastewater treatment/removal). This is a serious flaw that makes the study unusable.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	The metric is not applicable to the study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Reported value was not in line with data relating to wastewater treatment removal.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study.

Overall Quality Determination — Uninformative

Study Citation:	Dow Chemical, (2022). Atmospheric distribution of cyclic volatile methylsiloxanes and their long-range transport potential in the Northern Hemisphere.
OECD Harmonized Template:	Miscellaneous
HERO ID:	10706152

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental: monitoring study & atmospheric transport; experimental: monitoring study & atmospheric transport
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13C-D4; isotopic purity=98.7%; made in house by Dow Chemical; NR; >99% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring study of air concentrations from 15 sample cites in Europe in each of the four seasons; air samples were collected using a passive air sampler exposed to the atmosphere for 1 minute; samples stored under cold conditions before laboratory testing. Long-range transport potential predicted: OECD Tool to calculate the characteristic travel distances (CTDs) and empirical latitudinal travel distance (eLTD).; air samples were spiked with internal standards (13C-D4; 3 ng/g); NR
System Type Design	Not Reported
Sampling Frequency and Sampling Details	2; one for DOW and one for NILU; 15 sample sites, 4 different sampling periods (winter, spring, summer, fall).
Test Temperature	NR
Results Details	Concentration (ng/g sorbent/90 days) reported from Dow and NILU: Winter: Zeppelin, Svalbard (10, 7.6), Gorntinak, Norway (12, 11), Andoya, Norway (12, 12), Tustervatn, Norway (8.1, 7.0), Karvatn, Norway (8.3, 8.4), Birkenes, Norway (8.4, 8.5), Blaesbjerg, Denmark (18, 11), Weilerswist, Germany (17, 17); Spring: : Zeppelin, Svalbard (6.1, 6.5), Gorntinak, Norway (6.2, 6.8), Andoya, Norway (11, 8.6), Tustervatn, Norway (3.3, 4.4), Karvatn, Norway (3.7, 5.4), Birkenes, Norway (6.3, 6.0), Blaesbjerg, Denmark (8.7, 5.7), Weilerswist, Germany (14, 10); summer: Zeppelin, Svalbard (1.3, 1.4), Gorntinak, Norway (0.78, 0.7), Andoya, Norway (2.0, 1.8), Tustervatn, Norway (1.0, 0.9), Karvatn, Norway (2.0, 2.0), Birkenes, Norway (3.2, 3.6), Blaesbjerg, Denmark (6.0, 6.2), Weilerswist, Germany (14, 18); fall: Zeppelin, Svalbard (5.0, 5.3), Gorntinak, Norway (2.0, 4.2), Andoya, Norway (7.1, 7.2), Tustervatn, Norway (4.4, 5.6), Karvatn, Norway (5.3, 4.7), Birkenes, Norway (5.0, 5.2), Blaesbjerg, Denmark (8.6, 9.0), Weilerswist, Germany (12, 11)
Analytical Method and Analytical Details	GC-MS; MDL and MQL defined as 3 and 10 times standard deviation of field blanks; replicates performed by DOW and NILU; results were consistent between testers; for each sample tested, a field blank and a solvent blank were also spiked and tested.
Transformation Products, Statistics, and Kinetics	NR; Relative st error 31%; Predicted characteristic travel distance (CTD) = 7868 km; predicted empirical latitudinal travel distance (eLTD) = 3722 km.
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent control groups were tested and reported.
	Metric 4:	Test Substance Stability	High	Test material stability and storage were reported.

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Study Citation:	Dow Chemical, (2022). Atmospheric distribution of cyclic volatile methylsiloxanes and their long-range transport potential in the Northern Hemisphere.
OECD Harmonized Template:	Miscellaneous
HERO ID:	10706152

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	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 results were reasonable; limitations were noted with the CTD predictions used for long range transport.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Dow Chemical, (2022). Atmospheric distribution of cyclic volatile methylsiloxanes and their long-range transport potential in the Northern Hemisphere.
OECD Harmonized Template:	Miscellaneous
HERO ID:	10706152

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; experimental: monitoring study & atmospheric transport; experimental: monitoring study & atmospheric transport
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13C-D4; isotopic purity=98.7%; made in house by Dow Chemical; NR; >99% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring study of air concentrations from 15 sample cites in North America in each of the four seasons; air samples were collected using a passive air sampler exposed to the atmosphere for 1 minute; samples stored under cold conditions before laboratory testing. Long-range transport potential predicted: OECD Tool to calculate the characteristic travel distances (CTDs) and empirical latitudinal travel distance (eLTD).; air samples were spiked with internal standards (13C-D4; 3 ng/g); NR
System Type Design	Not Reported
Sampling Frequency and Sampling Details	2; 15 sample sites, 4 different sampling periods (winter, spring, summer, fall).
Test Temperature	NR
Results Details	Concentration (ng/g sorbent/90 days) reported from Dow: Winter: Alert, Nunavut (1.6), Kuujjuaq, Quebec (3.0), Fraserdale, Ontario (6.4), Alonguin, Ontario (7.4), Borden, Ontario (10), Downsview, Ontario (72), Toronto, Ontario (53); Spring: Alert, Nunavut (2.8), Kuujjuaq, Quebec (2.5), Fraserdale, Ontario (6.2), Alonguin, Ontario (6.1), Borden, Ontario (13), Downsview, Ontario (51), Toronto, Ontario (53); Summer: Alert, Nunavut (0.74), Kuujjuaq, Quebec (ND), Fraserdale, Ontario (2.1), Alonguin, Ontario (3.6), Borden, Ontario (13), Downsview, Ontario (68), Toronto, Ontario (75); Fall: Alert, Nunavut (1.7), Kuujjuaq, Quebec (0.29), Fraserdale, Ontario (3.2), Alonguin, Ontario (5.8), Borden, Ontario (17), Downsview, Ontario (69), Toronto, Ontario (48) Concentration (ng/g sorbent/90 days) reported from NILU: Winter: Alert, Nunavut (2.5), Kuujjuaq, Quebec (4.0), Fraserdale, Ontario (5.8), Alonguin, Ontario (8.1), Borden, Ontario (8.9), Downsview, Ontario (57), Toronto, Ontario (55); Spring: Alert, Nunavut (3.9), Kuujjuaq, Quebec (3.8), Fraserdale, Ontario (6.7), Alonguin, Ontario (6.2), Borden, Ontario (18), Downsview, Ontario (59), Toronto, Ontario (50); Summer: Alert, Nunavut (0.74), Kuujjuaq, Quebec (2.0), Fraserdale, Ontario (2.3), Alonguin, Ontario (3.5), Borden, Ontario (13), Downsview, Ontario (76), Toronto, Ontario (84); Fall: Alert, Nunavut (1.7), Kuujjuaq, Quebec (0.91), Fraserdale, Ontario (4.0), Alonguin, Ontario (6.4), Borden, Ontario (22), Downsview, Ontario (84), Toronto, Ontario (80)
Analytical Method and Analytical Details	GC-MS; MDL and MQL defined as 3 and 10 times standard deviation of field blanks; replicates performed by DOW and NILU; results were consistent between testers; for each sample tested, a field blank and a solvent blank were also spiked and tested.
Transformation Products, Statistics, and Kinetics	NR; Relative st error 33%; Predicted characteristic travel distance (CTD) = 7868 km; predicted empirical latitudinal travel distance (eLTD) = 2688 km.
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain		Metric	Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Concurrent control groups were tested and reported.
	Metric 4:	Test Substance Stability	High	Test material stability and storage were reported.

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Study Citation:	Dow Chemical, (2022). Atmospheric distribution of cyclic volatile methylsiloxanes and their long-range transport potential in the Northern Hemisphere.
OECD Harmonized Template:	Miscellaneous
HERO ID:	10706152

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	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 results were reasonable; limitations were noted with the CTD predictions used for long range transport.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Dow Corning, (1983). A model for estimating environmental distribution, with cover letter dated 4/20/94.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5888443

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; calculation; calculation
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	Equilibrium model based on a ”unit world” with all major environmental compartments present. System assumes 100 moles test substance added and allowed to reach equilibrium.; Air: 1E10 m^3Water: 7.0E6 m^3Bottom sed.: 21,000 m^3Suspended Sed.: 23.3 m^3Terrestrial ground: 45,000
Details	m^3Fish: 7 m^3; Air: assumed to be uniform and free of suspended matterHydrosphere: assumed to have mixing depth of 10 m; freshwater, 5 ppm suspended organic matterAquatic sed.: mixed, 3 cm active layer, 4% organic carbonTerrestrial compartment: 3% organic carbon
System Type Design	System inputsMW = 296VP = 1BP = 175.39WS = 0.5 ppmKow = 28200H = 31.86467Koc = 16920
Sampling Frequency and Sampling Details	Not applicable; Not applicable
Test Temperature	Not reported
Results Details	Distribution: Air: 77.90283% mol; Water: 1.438118% mol; Bottom Sed.: 6.569908% mol; Suspended Sed.: 7.289469E-3% mol; Terrestrial ground: 14.07838% mol; Fish: 3.479648E-3% mol
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; “The environmental model described is an equilibrium model which requires only simple mathematical manipulations and which is easy to conceptualize. The simplicity of the model leads to some limitations.”; 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 is identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable to calculations.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable to calculations.
Metric 4:	Test Substance Stability	N/A	Not applicable to calculations.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The equilibrium model was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Some model details, such as temperature, were not explicitly reported.
Metric 7:	Testing Consistency	N/A	Not applicable to calculations.
Metric 8:	System Type and Design	N/A	Not applicable to calculations.
Domain 4: Test Organisms			

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Study Citation:	Dow Corning, (1983). A model for estimating environmental distribution, with cover letter dated 4/20/94.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5888443

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable to calculations.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	The outcome assessment methodology cannot be verified as the model equations were not reported.
	Metric 12:	Test Substance Purity	N/A	Not applicable to calculations.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Model equilibrium equations were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to calculations.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The model results and inputs were 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	Uninformative	Model equilibrium equations were not explicitly reported and there was no analysis for goodness of fit or comparison to known reference substances.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2019). Distribution and evaluation of the fate of cyclic volatile methyl siloxanes in the largest lake of southwest China. Science of the Total Environment 657:87-95.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833862

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; calculation; calculation
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; WWTP samples containing D4; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Air, water, and sediment samples were collected from Dian Lake (China). D4 concentrations were measured and used to verify a fugacity-based multimedia model.; Model: Quantitative Water Air Sediment Interaction (QWASI).; Not reported
System Type Design	Not reported
Sampling Frequency and Sampling Details	January and July sampling periods were taken. Air (n=40), water and sediment (n=40). Inflow river water samples (n=14).; Field samples and blank samples were collected at the same time.
Test Temperature	The model predicted concentrations at 10 and 22
Results Details	D4 fraction in water and sediment: At 10°C: 37.1% in water, 62.9% in sediment; At 22°C: 33.8% in water, 66.2% in sediment.
Analytical Method and Analytical Details	GC-MS; Samples were blank corrected (air: 0.08-0.11 ng/m^3; water: 1.0-2.1 ng/L; sediment: 0.2-0.6 ng/g dw).
Transformation Products, Statistics, and Kinetics	Not Reported; Measured concentrations were ”close to the corresponding model simulated concentrations under different temperature scenarios”.; Predicted persistence (days) at 10°C in water: 4.8; in sediment: 744. At 22°C in water: 1.1; in sediment: 337.
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blank controls were used.
	Metric 4:	Test Substance Stability	Medium	Some of the details regarding the preparation of the samples were not reported but 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 substance was measured at environmental concentrations.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	Medium	The testing consistency could not be evaluated.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study type.

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Study Citation:	Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2019). Distribution and evaluation of the fate of cyclic volatile methyl siloxanes in the largest lake of southwest China. Science of the Total Environment 657:87-95.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833862

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the results; however, variations between the predicted and measured concentrations were discussed and unlikely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The ranges of the chemical concentrations were reported and the analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some of the details of the model were not reported but in the study but are available in the supporting information.
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:	Hamelink, J. L., Simon, P. B., Silberhorn, E. M. (1996). Henry's law constant, volatilization rate, and aquatic half-life of octamethylcyclotetrasiloxane. Environmental Science & Technology 30(6):1946-1952.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2803124

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	methanol; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Not Reported; Not Reported; neat material used
Test Method Details, Test Condition Details, and Test Consistency Details	Compound volatility tests at variable stirrer speeds using standard reagent water. Method cited to Smith et al 1980.; DO<1.0 mg/L; target concentrations were spiked below 56 ppb (solubility limit); not reported
System Type Design	2L sealed borosilicate glass beaker with YSI Model 5739 DO probe
Sampling Frequency and Sampling Details	Initial and at least 10 subsequent samples collected; headspace and liquid phase syringe sampling for purge and trap analysis
Test Temperature	not specified
Results Details	Readily volatilizes from water. At stirrer speeds of 200-450 rpm, volatilization rates from water ranged from 0.546 to 6.672 h-1, concurrent oxygen re-aeration rates ranged from 0.858 to 12.913 h-1, and volatilization/re-aeration ratios ranged from 0.636 to 0.516 with a mean value = 0.57±0.17.
Analytical Method and Analytical Details	GC-MS; Method detection limit ca. 0.5 µg/L; recoveries from gas and liquid phases = 77 to 89%
Transformation Products, Statistics, and Kinetics	not reported; Not Reported; Environmental volatilization rates in rivers 0.005-0.22 h-1, in lakes 0.002-0.005 h-1. Volatilization half-life: 3-138 hours (rivers), 138-345 hours (lakes and ponds).
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	Medium	The source and purity of the test substance were not specifically reported; however, neat material was used.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Analytical controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance preparation conditions were reported; test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	There were reported deviations or omissions in testing conditions (e.g., temperature, pH, duration).
	Metric 7:	Testing Consistency	High	Test conditions were consistent.

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Study Citation:	Hamelink, J. L., Simon, P. B., Silberhorn, E. M. (1996). Henry's law constant, volatilization rate, and aquatic half-life of octamethylcyclotetrasiloxane. Environmental Science & Technology 30(6):1946-1952.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2803124

			EVALUATION	
Domain		Metric	Rating	Comments
	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.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the 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.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Limited detail reported regarding this metric.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Concentrations of the target chemical or transformation product(s), extraction efficiency, or mass balance were not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	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	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Horii, Y., Nojiri, K., Minomo, K., Motegi, M., Kannan, K. (2019). Volatile methylsiloxanes in sewage treatment plants in Saitama, Japan: Mass distribution and emissions. Chemosphere 233:677-686.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836350

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
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	Influent, processed wastewater, effluent, sludge, and aeration gas samples collected from 9 sewage treatment plants (STPs) located in Saitama Prefecture, Japan; sewage treatment (59-92% domestic) volume ranges from 1.46-228 million m3/y; Removal% = 100 x (C inf - C eff)/C inf; conventional activated sludge (CAS) (STPs 1-7) and oxidation ditch (OD) treatment processes (STPs 8 and 9), with primary and/or secondary clarifiers
System Type Design	Reaction tank HRTs were 3.5-9.1 h for CAS plants 1-7 and 36 h for OD plants 8-9
Sampling Frequency and Sampling Details	influents and final effluents collected every 2 hours on Jan 28-29, 2014 (duration of 24 h, diurnal monitoring); composite samples (every 2 hours) collected on 7 continuous days during Feb 25 to Mar 4, 2014 via auto samplers with a cooling system; Flue gas and fly ash from a sludge incinerator (STP2) collected Sept 2014
Test Temperature	Not reported
Results Details	Mean removal efficiency = 96% (range 91-99%) Mean concentrations Influent: 0.48 µg/L; primary clarifier: 0.35 µg/L; aeration tank: 1.50 µg/L; second clarifier effluent: 0.026 µg/L; final effluent: 0.016 µg/L; aeration gas: 34.0 µg/m3; aeration after deodorization: <MDL; dewatered sludge: 0.36 µg/g ww; incineration ash <MDL; flue gas 0.04 µg/Nm3
Analytical Method and Analytical Details	modified purge and trap extraction method followed by GC/MS method reported previously and IOS method 20596-1:2018; Internal surrogate radiolabel standards used, recovery: 94±12%; MDL is in the range of 0.0006-0.01 µg/L for wastewater, 0.01-0.2 µg/m3 for aeration gas, 0.001-0.04 µg/g for sludge; specific details in Supplementary Information (not publicly available)
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 chemical name.
Metric 2:	Test Substance Purity	Medium	internal standard used; source and purity 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	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	This metric met the criteria for high confidence as expected for this type of study.
Metric 6:	Testing Conditions	High	This metric met the criteria for high confidence as expected for this type of study.

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Study Citation:	Horii, Y., Nojiri, K., Minomo, K., Motegi, M., Kannan, K. (2019). Volatile methylsiloxanes in sewage treatment plants in Saitama, Japan: Mass distribution and emissions. Chemosphere 233:677-686.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836350

			EVALUATION	
Domain		Metric	Rating	Comments
	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	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 12:	Test Substance Purity	High	This metric met the criteria for high confidence as expected for this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	This metric met the criteria for high confidence as expected for this type of study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	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:	Huppmann, R., Lohoff, H. W., Schröder, H. F. (1996). Cyclic siloxanes in the biological waste water treatment process - Determination, quantification and possibilities of elimination. Fresenius' Journal of Analytical Chemistry 354(1):66-71.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836190

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Not Reported
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Fluka, Neu-Ulm/Germany; NR; 99% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Biogas samples were taken from a waste water treatment plant Aechen-Soers. Chemical elimination of D4 from biogas was determined using sodium hydroxide or sulfuric acid treatment.; Sodium hydroxide experiments were performed at 1) 300g/L and 20°C and 2) 300g/L and 60°C. Sulfuric acid experiments were performed at 1) 20°C, 970 g/L and 2) 60°C, 1,840 g/L.; Not Reported
System Type Design	Gas washing bottle filled with degradation reagent
Sampling Frequency and Sampling Details	Four values were averaged for each experiment; Not Reported
Test Temperature	20-60°C
Results Details	D4 elimination using sodium hydroxide at 300 g/L and 20°C: 3%, at 60°C: 16%. D4 elimination using sulfuric acid at 20°C and 970g/L: 26%; at 60°C and 1,840g/L: 99%.
Analytical Method and Analytical Details	GC-FID after sorption on XAD-2 resin and solvent desorption by hexane using ultrasonification.; Varian Model 3700 GC with a fused-silica capillary column
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	NR; NR

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
Metric 2:	Test Substance Purity	High	The test substance 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 storage conditions were reported and appropriate.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
Metric 6:	Testing Conditions	High	The testing conditions were reported and appropriate.
Metric 7:	Testing Consistency	High	There were no reported differences 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			

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Study Citation:	Huppmann, R., Lohoff, H. W., Schröder, H. F. (1996). Cyclic siloxanes in the biological waste water treatment process - Determination, quantification and possibilities of elimination. Fresenius' Journal of Analytical Chemistry 354(1):66-71.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836190

			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 the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty in the measurements was 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	Medium	The target chemical and transformation products were not reported; however, the omissions are unlikely to have a substantial on the study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis and kinetic calculations were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, reasonableness of the evaluation 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 — High

Study Citation:	Hydroqual, (1993). Sampling and analysis for D4 (octamethylcyclotetrasiloxane) at selected wastewater treatment plants with cover letter dated 06/11/93.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889473

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; 1 L amber glass jars with teflon-lined caps in iced cooler; No sample degradation occurred after storage for 24 and 96 hours
Radiolabel, Source, State, Purity	NA; Northwest Bergen, Middletown, and Wayne WWTPs; Liquid; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples were collected from 4 WWTPs to determine wastewater treatment removal; Northwest Bergen WWTP in Waldwick, NJ; Liberty WWTP in Liberty, NY; Middletown WWTP, Middletown, NJ; Wayne WWTP, Wayne, NJ; TSS: 6.6 - 275mg/L; 8 - 62 mg/L; 16.4 - 157 mg/L; 2.3 - 111 mg/LBOD: 2.0 - 228 mg/L; 4 - 42 mg/L; 16.4 - 16.8 mg/L; NRpH: 6.68 - 7.16; NR; 6.68 - 7.00; 6.78 - 6.97; Samples collected between March and April, 1993
System Type Design	Conventional activated sludge plants treating domestic waste.
Sampling Frequency and Sampling Details	3 times over 1 and 2 hour intervals from 8:00 am to 3:00 pm; Grab samples collected as 24-hour composites at the influent and effluent with dual-head peristaltic pumps
Test Temperature	Water samples: 7.5 - 14.0 deg C
Results Details	NW Bergen WWTP: Influent: 5.69 ug/L; Effluent: < MDL; removal efficiency: 99%Liberty WWTP: Influent: 0.6 ug/L; Effluent:0.23 ug/L; removal efficiency: 62%Middletown WWTP: Influent: 7.09 ug/L; Effluent: 0.41 ug/L; removal efficiency: 94%Wayne WWTP: Influent: 3.69 ug/L; Effluent: < MDL; removal efficiency: 98%
Analytical Method and Analytical Details	GC/MS in SIM mode; Liquid-liquid extraction with heptaneMethod detection limit: 0.20 ug/LExtraction recovery: 80 -108%
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 by name.
	Metric 2:	Test Substance Purity	High	The sample sources were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Background concentrations and field blanks were accounted for.
	Metric 4:	Test Substance Stability	High	The sample storage was reported and stability over the storage period was confirmed.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Wastewater characteristics such as pH, TSS, BOD and temperature were reported for the plants.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Not applicable.

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Study Citation:	Hydroqual, (1993). Sampling and analysis for D4 (octamethylcyclotetrasiloxane) at selected wastewater treatment plants with cover letter dated 06/11/93.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889473

			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 WWTP removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and appropriate, sampling frequency was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was addressed in the measurements, no other notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; limits of detection and extraction efficiency were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistics and kinetic calculations were not reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Hydroqual, (1997). Fate of octamethylcyclotetrasiloxane (OMCTS) in sewage treatment plants as part of an estimation of aquatic exposure: Part II.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889488

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; calculation; calculation
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	A model was developed to predict the fate of D4 in an activated sludge plant.; Log Kow = 5.1Henry's constant = 17Influent: 150 ug/LInfluent DOC = 31 mg/L; Volatilization assumed to only occur in the aeration tank. Recycling streams from sludge treatment process not included in model.
System Type Design	Model activated sludge plant with a primary clarifier, aeration tank, and secondary clarifier
Sampling Frequency and Sampling Details	Not applicable; Not applicable
Test Temperature	Not reported
Results Details	Total removal efficiency: 82%42% removed as primary sludge (700 mg/kg)33% volatilized (16.0 µg/L)7% removed as secondary sludge (350 mg/kg)18% in plant effluent (27 µg/L)
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; Agreement between predicted and observed values: r^2 = 0.87; 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	N/A	Not applicable for calculations.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for calculations.
	Metric 4:	Test Substance Stability	N/A	Not applicable for calculations.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The calculation method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Appropriate model conditions were reported.
	Metric 7:	Testing Consistency	N/A	Not applicable for calculations.
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.

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Study Citation:	Hydroqual, (1997). Fate of octamethylcyclotetrasiloxane (OMCTS) in sewage treatment plants as part of an estimation of aquatic exposure: Part II.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889488

			EVALUATION	
Domain		Metric	Rating	Comments
	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 modeled fate in a WWTP.
	Metric 12:	Test Substance Purity	N/A	Not applicable for calculations.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	No notable sources of uncertainty were identified.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The calculations used to build the model were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods were applied appropriately to compare modeled removal and observed removal and were within an acceptable agreement.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The model results were reasonable and in an acceptable agreement with observed results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination High

Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	No; Fugacity modeling (EQC Level III) compared to sediment monitoring data; Fugacity modeling (EQC Level III) compared to sediment monitoring data
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, MO, USA); NR; >98% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Each sample was spiked with internal standards and extracted. The extract was concentrated to 1 mL by nitrogen stream and then subjected to gas chromatography-mass spectrometry.; EQC Level III model was ran using the physicochemical property parameters and emission data for D4 at four different temperatures. The rates of D4 emissions were calculated based on the resident population of Beijing of 21,700,000 and the removal efficiency of WWTPs.Model assumptions: - Temperature scenarios 0ºC, 15ºC, 25ºC and 35ºC- Emissions estimated based on the amount of D4-D6 in personal care products used per capita - 90% of D4–D6 used for personal care products by urban residents were released into the atmosphere and 10% were discharged into sewage water- D4 log Kaw = 2.69, log Kow = 6.98, log Koc = 4.22 (stated in supplementary info file); NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; 30 sediment samples collected in urban and suburban sites for Beijing, Kunming, Zhangjiagang, and Lijiang. Two samples were collected from the main natural rivers in each city using PTFE bottles.Three sampling sites for the water and sediment monitoring data were located near the outlet of the WWTPs, so any D4 discharged into the water would possibly not yet been volatilized into the air. The authors suggest this may lead to a high proportion of D4 in water and sediment.
Test Temperature	NR
Results Details	Mean D4 concentration in sediment samples (ng/g dw): Beijing: 0.65-8.50; Kunming: 0.82-6.9; Lijiang: <LOD-0.64; Zhangjiagang: 0.69-55.3
Analytical Method and Analytical Details	GC-MS; LOQ = 0.6–0.8 ng/g
Transformation Products, Statistics, and Kinetics	NR; Predicted fraction of the total mass of D4 from modeling the four different environmental media of Beijing (%): at 0 deg C: 92.0 (air), 2.8 (water), 0.02 (soil), 5.2 (sediment); at 15 deg C: 97.7 (air), 0.88 (water), 0.03 (soil), 1.4 (sediment); at 25 deg C: 99.2 (air), 0.40 (water), 0.04 (soil), 0.41 (sediment); at 35 deg C: 99.6 (air), 0.20 (water), 0.09 (soil), 0.09 (sediment). Actual proportions from monitoring results of D4 in water and sediment were 2.2% and 5.2%, or an order of magnitude higher than modeled results; 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 substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some 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:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or 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 testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Authors suggest equilibrium was not established based on comparison to monitoring results.
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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The differences in the measurements and modeling between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations and assumptions were clearly described and address the datasets.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable but the reported value was outside expected range.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported. The fugacity model used did not require structural fragments/QSARs inputs.

Overall Quality Determination — High

Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	No; Fugacity modeling (EQC Level III) compared to air monitoring data; Fugacity modeling (EQC Level III) compared to air monitoring data
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, MO, USA); NR; >98% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Each sample was spiked with internal standards and extracted. The extract was concentrated to 1 mL by nitrogen stream and then subjected to gas chromatography-mass spectrometry.; EQC Level III model was ran using the physicochemical property parameters and emission data for D4 at four different temperatures. The rates of D4 emissions were calculated based on the resident population of Beijing of 21,700,000 and the removal efficiency of WWTPs.Model assumptions: - Temperature scenarios 0ºC, 15ºC, 25ºC and 35ºC- Emissions estimated based on the amount of D4-D6 in personal care products used per capita - 90% of D4–D6 used for personal care products by urban residents were released into the atmosphere and 10% were discharged into sewage water- D4 log Kaw = 2.69, log Kow = 6.98, log Koc = 4.22 (stated in supplementary info file); NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; 156 air samples collected in urban and suburban sites for Beijing, Kunming, Zhangjiagang, and Lijiang. Two parallel samples were collected at each site and each sample was collected for 24 hours with sampling rates of 2 L/min. ISOLUTE ENV + 200 mg cartridges were used to collect the air samples.Three sampling sites for the water and sediment monitoring data were located near the outlet of the WWTPs, so any D4 discharged into the water would possibly not yet been volatilized into the air. The authors suggest this may lead to a high proportion of D4 in water and sediment.
Test Temperature	NR
Results Details	Mean D4 concentration in air samples (ng/m3): Beijing (urban): 66.2; Beijing (suburban): 40.5; Kunming (urban): 52.6; Kunming (suburban): 32.9; Lijiang (urban): 29.4; Lijiang (suburban): 12.3; Zhangjiagang (urban): 75.6; Zhangjiagang (suburban): 45.1; Siloxane production plant (around): 1.3E5; Siloxane production plant (downwind): 3.3E4; Siloxane production plant (upwind) 2.7E3
Analytical Method and Analytical Details	GC-MS; LOQ: 0.19-0.37 ng/m3
Transformation Products, Statistics, and Kinetics	NR; Predicted fraction of the total mass of D4 from modeling the four different environmental media of Beijing (%): at 0 deg C: 92.0 (air), 2.8 (water), 0.02 (soil), 5.2 (sediment); at 15 deg C: 97.7 (air), 0.88 (water), 0.03 (soil), 1.4 (sediment); at 25 deg C: 99.2 (air), 0.40 (water), 0.04 (soil), 0.41 (sediment); at 35 deg C: 99.6 (air), 0.20 (water), 0.09 (soil), 0.09 (sediment). Actual proportions from monitoring results of D4 in air was 92.6%, slightly lower than modeled results; 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 substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some control group details were not included; however, the lack of data was not likely to have a substantial impact on study results
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.

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Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Authors suggest equilibrium was not established based on comparison to monitoring results.
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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The differences in the measurements and modeling between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 but the reported value was outside expected range.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported. The fugacity model used did not require structural fragments/QSARs inputs.

Overall Quality Determination — High

Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	No; Fugacity modeling (EQC Level III) compared to water monitoring data; Fugacity modeling (EQC Level III) compared to water monitoring data
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, MO, USA); NR; >98% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Each sample was spiked with internal standards and extracted. The extract was concentrated to 1 mL by nitrogen stream and then subjected to gas chromatography-mass spectrometry.; EQC Level III model was ran using the physicochemical property parameters and emission data for D4 at four different temperatures. The rates of D4 emissions were calculated based on the resident population of Beijing of 21,700,000 and the removal efficiency of WWTPs.Model assumptions: - Temperature scenarios 0ºC, 15ºC, 25ºC and 35ºC- Emissions estimated based on the amount of D4-D6 in personal care products used per capita - 90% of D4–D6 used for personal care products by urban residents were released into the atmosphere and 10% were discharged into sewage water- D4 log Kaw = 2.69, log Kow = 6.98, log Koc = 4.22 (stated in supplementary info file); NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; 30 water samples collected in urban and suburban sites for Beijing, Kunming, Zhangjiagang, and Lijiang. Two samples were collected from the main natural rivers in each city using PTFE bottles.Three sampling sites for the water and sediment monitoring data were located near the outlet of the WWTPs, so any D4 discharged into the water would possibly not yet been volatilized into the air. The authors suggest this may lead to a high proportion of D4 in water and sediment.
Test Temperature	NR
Results Details	Mean D4 concentration in water samples (ng/L): Beijing: <LOD-20.2; Kunming: < LOD-15.3; Lijiang: <LOD-10.2; Zhangjiagang: <LOD-145
Analytical Method and Analytical Details	GC-MS; LOQ: 9.0-18.3 ng/L
Transformation Products, Statistics, and Kinetics	NR; Predicted fraction of the total mass of D4 from modeling the four different environmental media of Beijing (%): at 0 deg C: 92.0 (air), 2.8 (water), 0.02 (soil), 5.2 (sediment); at 15 deg C: 97.7 (air), 0.88 (water), 0.03 (soil), 1.4 (sediment); at 25 deg C: 99.2 (air), 0.40 (water), 0.04 (soil), 0.41 (sediment); 35 deg C: 99.6 (air), 0.20 (water), 0.09 (soil), 0.09 (sediment). Actual proportions from monitoring results of D4 in water and sediment were 2.2% and 5.2%, or an order of magnitude higher than modeled results; 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 substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some control group details were not included; however, the lack of data was not likely to have a substantial impact on study results
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.

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Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Authors suggest equilibrium was not established based on comparison to monitoring results.
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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The differences in the measurements and modeling between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 but the reported value was outside expected range.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported. The fugacity model used did not require structural fragments/QSARs inputs.

Overall Quality Determination — High

Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	No; Fugacity modeling (EQC Level III) compared to soil monitoring data; Fugacity modeling (EQC Level III) compared to soil monitoring data
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich (St. Louis, MO, USA); NR; >98% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Each sample was spiked with internal standards and extracted. The extract was concentrated to 1 mL by nitrogen stream and then subjected to gas chromatography-mass spectrometry.; EQC Level III model was ran using the physicochemical property parameters and emission data for D4 at four different temperatures. The rates of D4 emissions were calculated based on the resident population of Beijing of 21,700,000 and the removal efficiency of WWTPs.Model assumptions: - Temperature scenarios 0ºC, 15ºC, 25ºC and 35ºC- Emissions estimated based on the amount of D4-D6 in personal care products used per capita - 90% of D4–D6 used for personal care products by urban residents were released into the atmosphere and 10% were discharged into sewage water- D4 log Kaw = 2.69, log Kow = 6.98, log Koc = 4.22 (stated in supplementary info file); NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; 60 soil samples collected in urban and suburban sites for Beijing, Kunming, Zhangjiagang, and Lijiang. Two samples were collected near each rivers site in each city using steel syringes.
Test Temperature	NR
Results Details	Mean D4 concentration in soil samples (ng/g dw): Beijing: <LOD; Kunming: < LOD; Lijiang: <LOD; Zhangjiagang: <LOD-29.6
Analytical Method and Analytical Details	GC-MS; LOQ: 0.5-0.8 ng/g
Transformation Products, Statistics, and Kinetics	NR; Predicted fraction of the total mass of D4 from modeling the four different environmental media of Beijing (%): at 0 deg C: 92.0 (air), 2.8 (water), 0.02 (soil), 5.2 (sediment); at 15 deg C: 97.7 (air), 0.88 (water), 0.03 (soil), 1.4 (sediment); at 25 deg C: 99.2 (air), 0.40 (water), 0.04 (soil), 0.41 (sediment); 35 deg C: 99.6 (air), 0.20 (water), 0.09 (soil), 0.09 (sediment); 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 substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity and source were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some control group details were not included; however, the lack of data was not likely to have a substantial impact on study results
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were not reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups.

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Study Citation:	Jiang, Y., Guo, J., Zhou, Y., Zhang, B., Zhang, J. (2022). Occurrence and Behavior of Methylsiloxanes in Urban Environment in Four Cities of China. International Journal of Environmental Research and Public Health 19(21):13869.
OECD Harmonized Template:	Miscellaneous
HERO ID:	11318552

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Low	Authors suggest equilibrium was not established based on comparison to monitoring results.
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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	The differences in the measurements and modeling between study groups were considered or accounted for in data evaluation with minor deviations or omissions.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	Metric 16:	Statistical Methods and Kinetic Calculations	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 but the reported value was outside expected range.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported. The fugacity model used did not require structural fragments/QSARs inputs.

Overall Quality Determination — High

Study Citation:	Kent, D., Fackler, P., Hartley, D., Hobson, J. (1996). Interpretation of data from nonstandard studies: The fate of octamethylcyclotetrasiloxane in a sediment/water microcosm system. Environmental Toxicology and Water Quality 11(2):145-149.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834162

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	no; biodegradation, volatilization, and sorption; biodegradation, volatilization, and sorption
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-OMCTS; NR; NR; NR Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Microcosm consisting of natural sediment and water collected from an uncontaminated pond; aerated intermittently, for 10 minute periods, on-ceevery three days.; Radiolabeled D4 was added directly to the aqueous phase of each individual test system and the systems were monitored for 56 days. The rate and extent of mineralization and disappearance of the radiolabeled material was determined by passing CO2,-free air through the core chambers and trapping exhaust gases on a volatile organic trap and an alkaline CO2, trap.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	No biodegradation occurred in the test system. The majority of the added 14C-OMCTS was volatilized and collected in the Tenax trap. <5% of the total dose remained in the water by 28 days. Only a small amount (max of 6.7%) partitioned to sediments; these values also were less than 5% by 28 days of the study. <10% of the total 14C applied were observed in the KOH traps but was also found in the sterile controls.
Analytical Method and Analytical Details	High Performance Liquid Chromatography-Radiometric Detection (HPLC-RAM); NR
Transformation Products, Statistics, and Kinetics	alkaline hydrolysis product of D4; 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 by name.
	Metric 2:	Test Substance Purity	Medium	The source and the purity of the test substance was not reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	The paper discusses issues of data interpretation rather than all specific test details; however, it states sterile controls were included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Low	The test method was intended to investigate biodegradation but was not suitable for the test substance; the study demonstrated the chemical's potential to partition from water to air (volatilize) and/or sediment.

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Study Citation:	Kent, D., Fackler, P., Hartley, D., Hobson, J. (1996). Interpretation of data from nonstandard studies: The fate of octamethylcyclotetrasiloxane in a sediment/water microcosm system. Environmental Toxicology and Water Quality 11(2):145-149.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834162

Domain	Metric		EVALUATION Rating	Comments
	Metric 6:	Testing Conditions	Low	Some testing conditions were reported; the paper discusses issues of data interpretation rather than all specific test details.
	Metric 7:	Testing Consistency	High	Test conditions reported were consistent across samples or study groups.
	Metric 8:	System Type and Design	Low	Some test designs details were reported; the paper discusses issues of data interpretation rather than all specific test design details.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	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	Medium	Some sampling method details were not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were discussed; however, there is some uncertainty in data interpretation in the absence of additional study details.
	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	The analytical method was suitable. Authors acknowledge only limited data were included in this report (which is not the original/full test report).
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Authors acknowledge only limited data were included in this report.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable but only limited data was reported.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination Medium

* Related References: The paper states: This paper is to discuss the issues of data interpretation rather than specific study results, only limited data are included here. Comprehensive results of the biodegradation study from which this paper is derived can be found in Springborn Laboratories (1991).Springborn Laboratories, Inc. 1991. (Octamethylcyclotetrasiloxane) - Determination of the biodegradability in a sediment/water microbial system. Prepared for Silicones Health Council. February 12.

Study Citation:	Knoerr, S. M., Durham, J. A., Mcnett, D. A. (2017). Development of collection, storage and analysis procedures for the quantification of cyclic volatile methylsiloxanes in wastewater treatment plant effluent and influent. Chemosphere 182:114-121.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833846

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; NR; NR; NR
Radiolabel, Source, State, Purity	internal standard: 13C-D4 (99.5%); Dow Corning Corporation; NR; 99.8%
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples collected from 2 WWTPs (WWTP#1 n=3; WWTP#2 n=7).; Secondary activated sludge municipal WWTP facilities; WWTP #1: 15 million L/day, WWTP#2: 409 million L/day.; not specified
System Type Design	Samples collected from 2 wastewater treatment plants
Sampling Frequency and Sampling Details	samples collected in September 2012; Water grab samples collected in glass jars.
Test Temperature	not specified
Results Details	Concentrations of D4 in Influent samples (WWTP#1 and WWTP#2) = 0.18 µg/L, in effluent samples(WWTP#1 and WWTP#2) <MDL
Analytical Method and Analytical Details	GC-MS; LOD = 0.041 µg/L (114.0%RSD); MDL = 0.037 µg/L (74.7%RSD); LOQ = 0.093 µg/L (74.7%RSD); 82.7-98.9%recovery (field spikes)
Transformation Products, Statistics, and Kinetics	not reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	Not Reported; field blanks:

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 was reported; analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Field and procedure controls were included.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Low	Specific details on treatment plants were limited.
	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 the study.
Domain 4: Test Organisms				

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Study Citation:	Knoerr, S. M., Durham, J. A., Mcnett, D. A. (2017). Development of collection, storage and analysis procedures for the quantification of cyclic volatile methylsiloxanes in wastewater treatment plant effluent and influent. Chemosphere 182:114-121.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833846

		EVALUATION		
Domain		Metric	Rating	Comments
	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	Low	The assessment methodology did not specifically address or report the outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropiate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical analysis was conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	The study results were reasonable; however, were limited in relevance to data needs.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination **Low**

Study Citation:	Krogseth, I. S., Kierkegaard, A., McLachlan, M. S., Breivik, K., Hansen, K. M., Schlabach, M. (2013). Occurrence and seasonality of cyclic volatile methyl siloxanes in Arctic air. Environmental Science & Technology 47(1):502-509.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557591

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	13C-labeled D4; Alfa Aesar, MA, USA (non labeled D4) and Dow Corning Corporation (MI, USA, labeled D4); Not Reported; 98% (non labeled D4)
Test Method Details, Test Condition Details, and Test Consistency Details	After sampling, cartridges were capped, wrapped in aluminum foil, and stored at −18°C in PE bottles. Cartridges were spiked on the frit with internal standard of 900 pg/μL each of 13C-labeled D4, D5, and D6 in n-hexane. Samples were eluted with 3 mL of n-hexane directly into a vial for gas chromatography (GC).; Air sampling at the Zeppelin observatory (78°54' N, 11°53' E) during late summer (46 days in August−October) and early winter (18 days in November−December)of 2011.; Not Reported
System Type Design	SPE-AAS method
Sampling Frequency and Sampling Details	average sampling time was 81 $\pm$ 23 h in summer (3.4 days), and 25 $\pm$ 10 h in winter; average air flow through the cartridges was 18.0 $\pm$ 0.4 L/min
Test Temperature	Remote arctic temperatures
Results Details	D4 was found at concentrations of not detected to 0.95 ng/m^3 in summer to not detected to 2.13 ng/m^3 in winter with the warning that D4 present was possibly formed from D5
Analytical Method and Analytical Details	HP 6890 Series GC System with an Agilent 7863 Series Injector and an HP 5973 Mass Selective Detector (MSD) in positive electron ionization mode; limit of detection (LOD) were calculated as the average level in the field blanks plus 3 and 10 times the standard deviation of the level in the field blanks,
Transformation Products, Statistics, and Kinetics	Hexamethylcyclotrisiloxane (D3); Not Reported; NA
Reference Substance and Reference Substance Results	Trimethylsilyloxysilane (M3T) was added as recovery standard, 13C-labeled D4 was an internal standard; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank group and positive control were included.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.

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Study Citation:	Krogseth, I. S., Kierkegaard, A., McLachlan, M. S., Breivik, K., Hansen, K. M., Schlabach, M. (2013). Occurrence and seasonality of cyclic volatile methyl siloxanes in Arctic air. Environmental Science & Technology 47(1):502-509.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557591

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

Overall Quality Determination Medium

Study Citation:	Krogseth, I. S., Kierkegaard, A., McLachlan, M. S., Breivik, K., Hansen, K. M., Schlabach, M. (2013). Occurrence and seasonality of cyclic volatile methyl siloxanes in Arctic air. Environmental Science & Technology 47(1):502-509.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557591

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Hexamethylcyclotrisiloxane (D3)
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	13C-labeled D3; Alfa Aesar, MA, USA (non labeled D3); Not Reported; 98% (non labeled D)
Test Method Details, Test Condition Details, and Test Consistency Details	After sampling, cartridges were capped, wrapped in aluminum foil, and stored at −18°C in PE bottles. Cartridges were spiked on the frit with internal standard of 900 pg/μL each of 13C-labeled D4, D5, and D6 in n-hexane. Samples were eluted with 3 mL of n-hexane directly into a vial for gas chromatography (GC).; Air sampling at the Zeppelin observatory (78°54' N, 11°53' E) during late summer (46 days in August−October) and early winter (18 days in November−December)of 2011.; Not Reported
System Type Design	SPE-AAS method
Sampling Frequency and Sampling Details	average sampling time was 81 $\pm$ 23 h in summer (3.4 days), and 25 $\pm$ 10 h in winter; average air flow through the cartridges was 18.0 $\pm$ 0.4 L/min
Test Temperature	Remote arctic temperatures
Results Details	D3 was found at concentrations of not detected to 2.20 ng/m^3 in summer to not detected to 2.98 ng/m^3 in winter with the warning that D3 present was possibly formed from D5
Analytical Method and Analytical Details	HP 6890 Series GC System with an Agilent 7863 Series Injector and an HP 5973 Mass Selective Detector (MSD) in positive electron ionization mode; limit of detection (LOD) were calculated as the average level in the field blanks plus 3 and 10 times the standard deviation of the level in the field blanks,
Transformation Products, Statistics, and Kinetics	Hexamethylcyclotrisiloxane (D3); Not Reported; NA
Reference Substance and Reference Substance Results	Trimethylsilyloxysilane (M3T) was added as recovery standard, 13C-labeled D4, D5 and D6 was an internal standard; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	A concurrent blank group and positive control were included.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were reported and these factors likely influenced the test substance or are likely to have a substantial impact on the study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples or study groups. The conditions of the exposure were documented.

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Study Citation:	Krogseth, I. S., Kierkegaard, A., McLachlan, M. S., Breivik, K., Hansen, K. M., Schlabach, M. (2013). Occurrence and seasonality of cyclic volatile methyl siloxanes in Arctic air. Environmental Science & Technology 47(1):502-509.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557591

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome(s) of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study and the differences in the measurements and statistical techniques and between study groups were considered or accounted for in data evaluation with minor deviations or omissions
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Medium

Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65 x 10^8 Bq/g); Prepared at Dow Corning; NR; 99.7% (by HPLC) Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Polycarbonate centrifuge tubes with Londo soil (5g) and 1 ug/g of DMSD were left open to air and moistened to 18% each week for 7 weeks.; Pipestone soil from Michigan: Sand, pH=5.2, 1.8% organic matter, 89% sand, 7% silt, 4% clay, CEC=3.8 and moisture at 0.04 MPa = 6.3%.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	weekly; NR
Test Temperature	21-23 deg C
Results Details	7.7% per week loss due to volatilization (R=0.92)
Analytical Method and Analytical Details	HPLC (Hewlett Packard 1050 chromatograph with a polymer-based C18 column); 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 by name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and the purity verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				

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Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

		EVALUATION		
Domain		Metric	Rating	Comments
	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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65 x 10^8 Bq/g); Prepared at Dow Corning; NR; 99.7% (by HPLC) Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Water (5 mL) containing 4,150 Bq of DMSD in plastic vials were left open in a hood to allow water to evaporate.; Scintillation cocktail was added to duplicate vials.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	Sampling at remaining water weight of 5, 4, 3, 2, 1, 0.5, 0.3, 0.2, 0.1, 0.05, 0.02, 0.01, or 0.00 g.; NR
Test Temperature	21-23 deg C
Results Details	98% DMSD volatilized
Analytical Method and Analytical Details	14C counting on Packard 2500 scintillation counter; Not Reported
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 by name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and the purity verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.

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Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

			EVALUATION	
Domain		Metric	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	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65 x 10^8 Bq/g); Prepared at Dow Corning; NR; 99.7% (by HPLC) Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Polycarbonate centrifuge tubes with 12 soils soil (5g) and 1 ug/g of DMSD were left open to air and moistened to 18% each week for 8 weeks. Weekly rewettings to water contents of 33% were designed to bring soils with the highest water-holding capacities (Fargo and Wahiawa) to 0.03 MPa.; Mixture of 12 soils: Appling, Cashmont, Cohoctah, Fargo, Fuquay, Hastings, Londo, Pipestone, Raub, Sloan, Tuscola, Wahiawa. Properties of soils can be found in Table 1.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	weekly; NR
Test Temperature	21-23 deg C
Results Details	6.4 to 1.4% per week loss due to volatilization
Analytical Method and Analytical Details	HPLC (Hewlett Packard 1050 chromatograph with a polymer-based C18 column); 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 by name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and the purity verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.

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Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (9.65 x 10^8 Bq/g); Prepared at Dow Corning; NR; 99.7% (by HPLC) Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Polycarbonate centrifuge tubes with Londo soil (5g) and 1 ug/g of DMSD were left open to air and moistened to 18% each week for 7 weeks. A weekly rewetting of the soil to about 0.03 MPa was followed by gradual evaporation at room temperatures of 21 to 238C and roughly 20 to 40% relative humidity; Londo soil from Michigan: Sandy clay loam, pH=7.4, 2.9% organic matter, 55% sand, 21% silt, 24% clay, CEC=12.4 and moisture at 0.04 MPa = 18.6%.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	weekly; NR
Test Temperature	21-23 deg C
Results Details	3.6% per week loss due to volatilization (R=0.93); 30% after 7 weeks
Analytical Method and Analytical Details	HPLC (Hewlett Packard 1050 chromatograph with a polymer-based C18 column); 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 by name.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported and the purity verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	N/A	This metric does not apply to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric does not apply to this study type.

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Study Citation:	Lehmann, R. G., Miller, J. R. (1996). Volatilization and sorption of dimethylsilanediol in soil. Environmental Toxicology and Chemistry 15(9):1455.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289207

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	High	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	This metric does not apply to this study type.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric does not apply to this study type.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289211

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; Dimethylsilanediol
Confidentiality, Type, Guideline	no; volatilization from soil; volatilization from soil
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-DMSD (specific activity of 26.1 uCi/mg; Synthesized for study; NR; 96.5% Notes: NR
Test Method Details, Test Condition Details, and Test Consistency Details	Soil samples, containing DMSD in Rye grass plant tissue, were incubated at 22ºC with 15 hours of lighting and 9 hours of darkness and a brief aeration about every 2 days. After 12 weeks of incubation for a biodegradation experiment, soils were dried and rewetted twice daily (40% water content). Soil samples were removed on days 0, 2 and 4 for analysis.; Londo sandy loam with organic matter content of 3.3% and sand:silt:clay ration of 62:21:17 and a water content of 9.2 and 5.9% (dried to 5.1% water content prior to use).; NR
System Type Design	NR
Sampling Frequency and Sampling Details	every 2 days; NR
Test Temperature	22ºC
Results Details	60% DMSD lost from soil after 2 days
Analytical Method and Analytical Details	Combustion in a R.J Harvey OX-500 Oxidizer; 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	High	The test material source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	Test substance stability was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations and these deviations or omissions were not likely to have a substantial impact on study results.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were 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	High	Testing conditions were consistent.

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Study Citation:	Lehmann, R. G., Miller, J. R., Kozerski, G. E. (2002). Fate of dimethylsilanediol in a grass and soil system. Applied Soil Ecology 19(2):103-111.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289211

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	System type and design were not stated to be capable of maintaining substance concentrations but this was not likely to have a substantial impact on study results.
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	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Some details regarding sampling methods of the outcome were not fully reported; however, the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation.
	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	The target chemical and transformation product(s) concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	This metric does not apply to this study type.

Overall Quality Determination — High

Study Citation:	Lehmann, R. G., Varaprath, S., Frye, C. L. (1994). Fate of silicone degradation products (silanols) in soil. Environmental Toxicology and Chemistry 13(11):1753.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289208

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; fate of polydimethylsiloxane (PDMS) degradation products in soil; fate of polydimethylsiloxane (PDMS) degradation products in soil
Solvent, Reactivity, Storage, Stability	tetrahydrofuran (THF); NR; NR; NR
Radiolabel, Source, State, Purity	randomly 14C-labeled PDMS with specific activity of 7880 Bq/g; NR; solution in THF; radiochemical purity of 99.9% Notes: PDMS
Test Method Details, Test Condition Details, and Test Consistency Details	PDMS (100 mg/kg) applied to moist soil in incubation flasks was left open to air to dry for 2 weeks. After 2 weeks 5 mL of water was added along with 100 mL of 0.2 KOH solution for trapping 14CO2. Flasks were attached to O2 and incubated in the dark at 25 deg C for 0, 1, 2, 4, 7, 10, 13, or 19 weeks. At 7 weeks, 1 g of ground, dried alfalfa was mixed in to three of the flasks with fresh water (1 mL) and fresh KOH before incubating for 0, 3, 9, and 20 weeks.; Londo sandy clay loam (0 to 5 cm) collected in late April of 1992 from a farm in Bay County, Michigan. Composition: sand:silt:clay of 50:28:22, CEC of 13.1 cmol/kg, organic matter content of 2.4%, pH 7.6.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	Soil with alfalfa: 10, 13, 19 weeks; NR
Test Temperature	25 deg C
Results Details	DMSD detected (% of material balance of soil flasks): 32.7, 32.4, 26.6 at 10, 13, 19 weeks respectively.
Analytical Method and Analytical Details	HPLC-gel-permeation chromatography (GPC) and GC-MS; NR
Transformation Products, Statistics, and Kinetics	dimethylsilanediol (DMSD) is the main breakdown product of PDMS in soil; it was degraded to 14CO2; 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	Test substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.

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Study Citation:	Lehmann, R. G., Varaprath, S., Frye, C. L. (1994). Fate of silicone degradation products (silanols) in soil. Environmental Toxicology and Chemistry 13(11):1753.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289208

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment (i.e., degradation rate not reported; however, degradation products and a degradation pathway were proposed).
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Confounding variables were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Medium

Study Citation:	Lehmann, R. G., Varaprath, S., Frye, C. L. (1994). Fate of silicone degradation products (silanols) in soil. Environmental Toxicology and Chemistry 13(11):1753.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289208

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; dimethylsilanediol
Confidentiality, Type, Guideline	no; fate of polydimethylsiloxane (PDMS) degradation products in soil; fate of polydimethylsiloxane (PDMS) degradation products in soil
Solvent, Reactivity, Storage, Stability	THF; NR; NR; NR
Radiolabel, Source, State, Purity	randomly 14C-labeled PDMS with specific activity of 7880 Bq/g; NR; solution in THF; radiochemical purity of 99.9% Notes: PDMS
Test Method Details, Test Condition Details, and Test Consistency Details	PDMS (100 mg/kg) applied to moist soil in incubation flasks and left open to air to dry for 2 weeks. After 2 weeks 5 mL of water was added along with 100 mL of 0.2 KOH solution for trapping 14CO2. Flasks were attached to O2 and incubated in the dark at 25 deg C for 0, 1, 2, 4, 7, 10, 13, or 19 weeks. At 7 weeks, 1 g of ground, dried alfalfa was mixed in to three of the flasks with fresh water (1 mL) and fresh KOH before incubating for 0, 3, 9, and 20 weeks.; Londo sandy clay loam collected in late April of 1992 from a farm in Bay County, Michigan. Composition: sand:silt:clay of 50:28:22, CEC of 13.1 cmol/kg, organic matter content of 2.4%, pH 7.6.; NR
System Type Design	NR
Sampling Frequency and Sampling Details	Soil only: 0, 1, 2, 4, 7, 10, 13, 19 weeks; NR
Test Temperature	25 deg C
Results Details	% of DMSD detected: 21.9, 38.7, 40.4, 40.3, 41.2, 38.4, 35.0, 34.6 at week 0, 1, 2, 4, 7, 10, 13, 19 respectively
Analytical Method and Analytical Details	HPLC-GPC and GC-MS; NR
Transformation Products, Statistics, and Kinetics	dimethylsilanediol (DMSD) is the main breakdown product of PDMS in soil; it was degraded to 14CO2; 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	Test substance was identified by name.
	Metric 2:	Test Substance Purity	High	Test substance purity was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Some concurrent control group details were not included.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions werenot reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	The test method was suitable for the test substance with minor deviations.
	Metric 6:	Testing Conditions	Medium	Some testing conditions were reported.
	Metric 7:	Testing Consistency	High	Testing conditions were consistent.
	Metric 8:	System Type and Design	Medium	Equilibrium was not established or reported but this was not likely to have a substantial impact on study results.
Domain 4: Test Organisms				

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Study Citation:	Lehmann, R. G., Varaprath, S., Frye, C. L. (1994). Fate of silicone degradation products (silanols) in soil. Environmental Toxicology and Chemistry 13(11):1753.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7289208

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 9:	Outcome Assessment Methodology	High	The test inoculum was reported.
	Metric 10:	Sampling Methods	N/A	This metric does not apply to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Medium	There were minor differences between the assessment methodology and the intended outcome assessment (i.e., degradation rate not reported; however, degradation products and a degradation pathway were proposed).
	Metric 12:	Test Substance Purity	Medium	The sampling method was reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Confounding variables were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Medium

Study Citation:	Li, B., Li, W. L., Sun, S. J., Qi, H., Ma, W. L., Liu, L. Y., Zhang, Z. F., Zhu, N. Z., Li, Y. F. (2016). The occurrence and fate of siloxanes in wastewater treatment plant in Harbin, China. Environmental Science and Pollution Research 23(13):13200-13209.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6835872

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	NA; Wastewater from largest WWTP in Harbin, Heilongjiange Province, China; NA; NA Notes: Analytical standard obtained from Tokyo Chemical Industry (>98% purity, Wellesley Hill, MA, USA)
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent wastewater samples collected to determine the removal efficiency of selected pollutants at a WWTP in Harbin, Heilongjiang Province, China; Capacity for each treatment process: 325,000 m^3/day; WWTP capacity: 650,000 m^3/day80% domestic wastewater, 20% industrial wastewater
System Type Design	Primary treatment: bar screens and grit chamber. Two parallel secondary treatments: anaerobic-oxic and biological aerated filter
Sampling Frequency and Sampling Details	Samples collected January, April, July, and December 2012, at 10 am, 1 pm, and 4 pm for three consecutive weekdays and mixed as composite samples; Samples collected in brown glass bottles at the influent, secondary effluent, and final effluent.
Test Temperature	Not reported
Results Details	average biological aerated filter process removal efficiency: 100%Average anaerobic-oxic process removal efficiency: 85.7%Mean influent (range): 62.4 ng/L (16.8 - 103 ng/L)Mean effluent (range): 26.0 ng/L (10.4 - 59.3 ng/L)
Analytical Method and Analytical Details	GC-MS in selected ion monitoring with electron ionization mode; LOQ 0.2 - 2 ng/L (wastewater); Wastewater filtered, retaining filters for analysis. Aqueous portion extracted 3x with DCM, particulate portion Soxhlet extracted with DCM, purified with a silica gel column; recovery 87.7±13.0% (wastewater)
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not applicable
Reference Substance and Reference Substance Results	Blank samples; < 9% of real samples

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported. Analytical standard source and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Blanks were included and were within a valid range.
	Metric 4:	Test Substance Stability	Medium	Sample 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	WWTP operational stages but not conditions (temperature, HRT, SRT) were reported.
	Metric 7:	Testing Consistency	High	Samples were collected, processed, and analyzed consistently.

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Study Citation:	Li, B., Li, W. L., Sun, S. J., Qi, H., Ma, W. L., Liu, L. Y., Zhang, Z. F., Zhu, N. Z., Li, Y. F. (2016). The occurrence and fate of siloxanes in wastewater treatment plant in Harbin, China. Environmental Science and Pollution Research 23(13):13200-13209.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6835872

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable.
	Metric 10:	Sampling Methods	N/A	Not applicable.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology was appropriate for assessing removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate and frequency accounted for seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Lack of operational conditions limit the broader conclusions which can be drawn from these results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was appropriate; recovery and limits of quantification were reported. Averages and ranges of detected concentrations were reported. Removal efficiency was estimated from a graph for the biological aerated filter process.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Statistical analysis was not applied.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Operational conditions (temperature, HRT, SRT, etc.) were omitted, limiting the reliability of the results.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — High

Study Citation:	Mueller, J. A., Di Toro, D. M., Maiello, J. A. (1995). Fate of octamethylcyclotetrasiloxane (OMCTS) in the atmosphere and in sewage treatment plants as an estimation of aquatic exposure. Environmental Toxicology and Chemistry 14(10):1657-1666.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2749059

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; calculation; calculation
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	The atmospheric model is a mixed model of the troposphere in which hydroxyl radical oxidation occurs and air water partitioning is evaluated (steady-state conditions are applied); Concentrations over land and ocean are predicted; model used hydroxyl radical concentration set at 5E-5 molecules/cm3 and D4 hydroxyl radical reaction rate constant = 0.0436/day, half-life = 15.9 days (from Atkinson, 1991).; Acetylene used as a surrogate for model calibration (similar atmospheric reaction rate).
System Type Design	Model equations based on influent and continental boundary layer concentrations account for completely mixed system at steady-state and first-order kinetics. Assumes only pathway of D4 to natural waters is discharge from STP.
Sampling Frequency and Sampling Details	Not applicable; Not applicable
Test Temperature	Not reported
Results Details	Based on monitoring data from LA, a total environmental load = 4.94E6 kg/yr results in maximum concentrations over continental US waters = 10-5 µg/L, overall water concentrations in equilibrium with the atmosphere were predicted to range from ca. 10-5 to 10-8 µg/L with a mean value = 5.7E-7 µg/L; D4 overland air (surface atmosphere) concentrations were predicted to range from ca. 10-1 to 10-4 µg/L with a mean value = 0.0097 µg/m3; average sediment and soils concentrations = 1.4E-3 µg/kg. Average concentrations of the Atlantic Ocean in the troposphere = 0.0013 µg/m3 and water = 7.8E-8 µg/L.
Analytical Method and Analytical Details	Not applicable; Not applicable
Transformation Products, Statistics, and Kinetics	Not reported; Not reported; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	High	Test item was identified by name.
Metric 2:	Test Substance Purity	N/A	Not applicable for modelling study.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Benzene was used as a data heavy reference compound; acetylene used as a surrogate for model calibration (similar atmospheric reaction rate).
Metric 4:	Test Substance Stability	N/A	Not applicable for modelling study.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	A modelling study based on experimental data from literature and environmental factors is appropriate for the selected endpoints.

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Study Citation:	Mueller, J. A., Di Toro, D. M., Maiello, J. A. (1995). Fate of octamethylcyclotetrasiloxane (OMCTS) in the atmosphere and in sewage treatment plants as an estimation of aquatic exposure. Environmental Toxicology and Chemistry 14(10):1657-1666.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2749059

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	Not applicable for modelling study.
	Metric 7:	Testing Consistency	N/A	Not applicable for modelling study.
	Metric 8:	System Type and Design	High	The modelling design took a variety of environmental factors, including time of day, into consideration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for modelling study.
	Metric 10:	Sampling Methods	N/A	Not applicable for modelling study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Assessment methodology was appropriate.
	Metric 12:	Test Substance Purity	N/A	Not applicable for modelling study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables that could affect uncertainty were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for modelling study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	Not applicable for modelling study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for modelling study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Results were plausible based on current amount of available data.
	Metric 18:	QSAR Models	High	Model construction was reasonable.

Overall Quality Determination — High

Study Citation:	Mueller, J. A., Di Toro, D. M., Maiello, J. A. (1995). Fate of octamethylcyclotetrasiloxane (OMCTS) in the atmosphere and in sewage treatment plants as an estimation of aquatic exposure. Environmental Toxicology and Chemistry 14(10):1657-1666.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2749059

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; calculation; calculation
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	The treatment plant model was developed for an activated sludge treatment plant consisting of a primary clarifier, aeration tank and secondary clarifier; loss processes include biodegradation, volatilization, and adsorption.; model input requirements: wastewater characteristics such as flow, concentrations, organic and suspended solid loads, and unit operation characteristics: overflow rates, aeration tank sludge age, and aeration system; Three prediction scenarios used for modeling: 1-assumed all D4 in consumable products reached treatment plant, D4 influent concentration = 150 µg/L, typical activated sludge plant operation
System Type Design	2-influent and effluent concentrations estimated from measured combined sludge = 0.21 mg/kg; 3- measured influent data and plant characteristics for three domestic activated sludge treatment facilities
Sampling Frequency and Sampling Details	validation of the model was performed by comparison to data from 4 treatment facilities, 2 pilot plants, and 2 WWTP; r2 = 0.87 for observed and predicted values obtained for primary sludge, secondary sludge, and final plant effluent; Not applicable
Test Temperature	Not reported
Results Details	Total removal predicted from the 3 scenarios ranged from 82-85%, the STP fate model prediction was 81.5% removal (42% was removed as primary sludge, 33 to 38% was volatilized to the atmosphere, and 15 to 18% was removed as secondary sludge); total removal observed in the 3 – STPs ranged from 90.8-99%; predicted values with DOC sorption and without DOC sorption ranged from 83.7 to 91.6% and 90.2 to 94.3%, respectively and predicted average target chemical concentrations in effluents were 0.39 to 0.66 µg/L, respectively.
Analytical Method and Analytical Details	Not applicable; Not applicable
Transformation Products, Statistics, and Kinetics	Not applicable; Not applicable; Not applicable
Reference Substance and Reference Substance Results	Not applicable; Not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	Test item was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for modelling study.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Validation of the model was performed by comparison to data from 4 treatment facilities, 2 pilot plants.
	Metric 4:	Test Substance Stability	N/A	Not applicable for modelling study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	A modelling study based on experimental data from literature and environmental factors is appropriate for the selected endpoints.
	Metric 6:	Testing Conditions	N/A	Not applicable for modelling study.

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Study Citation:	Mueller, J. A., Di Toro, D. M., Maiello, J. A. (1995). Fate of octamethylcyclotetrasiloxane (OMCTS) in the atmosphere and in sewage treatment plants as an estimation of aquatic exposure. Environmental Toxicology and Chemistry 14(10):1657-1666.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2749059

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	N/A	Not applicable for modelling study.
	Metric 8:	System Type and Design	High	The modelling design took a variety of environmental factors, including time of day, into consideration.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for modelling study.
	Metric 10:	Sampling Methods	N/A	Not applicable for modelling study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Assessment methodology was appropriate.
	Metric 12:	Test Substance Purity	N/A	Not applicable for modelling study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables that could affect uncertainty were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for modelling study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	Not applicable for modelling study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not applicable for modelling study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Results were plausible based on current amount of available data.
	Metric 18:	QSAR Models	High	Model construction was reasonable.

Overall Quality Determination — High

Study Citation:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	No; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Dow Corning; Not Reported; >99.5%
Test Method Details, Test Condition Details, and Test Consistency Details	Ozone, model mineral dust aerosol and the D4 test substance were mixed in an environmental reaction chamber for 400 minutes.; Relative humidity (RH) inside the chamber was $\preceq$1%, hematite aerosols used; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not reported, figures show multiple sampling points; D4 and ozone loss under dry conditions used as a control
Test Temperature	Measured but not reported, perhaps 296 in K is reported in figure 1.
Results Details	D4 areal rate = 10$\pm$2E10 cm-2s-1 with Hematite and $\preceq$1% RH
Analytical Method and Analytical Details	FT-IR spectroscopy used to monitor the reaction progress; 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	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups. Aeral rates were tested at various humidity levels.
	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:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

			EVALUATION	
Domain		Metric	Rating	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	High	Test conditions were consistent across samples or study groups.
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study 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	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	No; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Dow Corning; Not Reported; >99.5%
Test Method Details, Test Condition Details, and Test Consistency Details	Ozone, model mineral dust aerosol and the D4 test substance were mixed in an environmental reaction chamber for 400 minutes.; Relative humidity (RH) inside the chamber was varied from dry ($\preceq$1% RH) to 70% RH, hematite and kaolinite dust aerosols used; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not reported, figures show multiple sampling points; D4 and ozone loss under dry conditions used as a control
Test Temperature	Measured but not reported, perhaps 296 in K is reported in figure 1.
Results Details	D4 areal rate = 6$\pm$4E10 cm-2s-1 (average of RH$\preceq$1 to 60% trials with Hematite); ozone decay rates were relatively independent of RH
Analytical Method and Analytical Details	FT-IR spectroscopy used to monitor the reaction progress; 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	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups. Aeral rates were tested at various humidity levels.
	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 across samples or study groups.

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Study Citation:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

EVALUATION

Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study 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	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

EXTRACTION

Parameter	**Data**
CASRN and Test Material	NR; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	No; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Dow Corning; Not Reported; >99.5%
Test Method Details, Test Condition Details, and Test Consistency Details	Ozone, model mineral dust aerosol and the D4 test substance were mixed in an environmental reaction chamber for 400 minutes.; Relative humidity (RH) inside the chamber was $\preceq$1%, kaolinite aerosols used; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not reported, figures show multiple sampling points; D4 and ozone loss under dry conditions used as a control
Test Temperature	Measured but not reported, perhaps 296 in K is reported in figure 1.
Results Details	D4 areal rate = 11$\pm$2E10 cm-2s-1 with Kaolinite and $\preceq$1% RH
Analytical Method and Analytical Details	FT-IR spectroscopy used to monitor the reaction progress; 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	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups. Aeral rates were tested at various humidity levels.
	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 across samples or study groups.

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Study Citation:	Navea, J. G., Xu, S. H., Stanier, C. O., Young, M. A., Grassian, V. H. (2009). Effect of ozone and relative humidity on the heterogeneous uptake of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane on model mineral dust aerosol components. Journal of Physical Chemistry A 113(25):7030-7038.
OECD Harmonized Template:	Miscellaneous
HERO ID:	614931

EVALUATION

Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	High	The system type and design were capable of appropriately maintaining substance concentrations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	Medium	Details regarding sampling methods of the outcome(s) were not fully reported, but the omissions were not likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Sources of variability and uncertainty in the measurements and statistical techniques and between study groups were reported in the study 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	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Navea, J. G., Young, M. A., Xu, S. H., Grassian, V. H., Stanier, C. O. (2011). The atmospheric lifetimes and concentrations of cyclic methylsiloxanes octamethylcyclotetrasiloxane (D(4)) and decamethylcyclopentasiloxane (D(5)) and the influence of heterogeneous uptake. Atmospheric Environment 45(18):3181-3191.
OECD Harmonized Template:	Miscellaneous
HERO ID:	835791

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane (D4)
Confidentiality, Type, Guideline	No; Calculation; Calculation
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	Considered spatial variation in D4, aerosol, OH, and water vapor concentrations; diurnal variation in emissions, diurnal variation in OH concentration, box-to-box variability in OH concentrations, heterogeneous reactions of cVMS with dependence of relative humidity (RH), diurnally varying RH, and compartment-specific loadings of reactive aerosols in urban, transition, and rural compartments; Parameters used: kOH = 1.01±0.32E-12 cm3/molec-s and 1.26E-12 cm3/molec-s, U.S. emissions = 10E6 kg, Per capita emission = 0.02 and 0.033 kg/person-year, atmospheric lifetime from reaction with OH = 11.5-9.2 days, atmospheric half-life from reaction with OH = 7.9-6.4 days, Assumed ratio to benzene emissions = 1:32, Assumed upwind background concentration (ng/m3) = 4.4 (annual), 1.5 (summer), 8.6 (winter), Apparent uptake coefficient assumed in model = 1.6E-5, relative humidity parameter SRH = 30, Mean molecular velocity at 297 K = 145.75 m/s; Not Reported
System Type Design	Not Reported
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	Lifetime = 11.46 days for OH oxidation under average OH levels of of 10E6 molec/cm3, corresponding to tropospheric annual average for northern mid-latitudes; Calculated ambient air concentrations (concentration at 44N) = 33, 19, and 4.8 ng/m3 in the urban, transition, and rural compartments, respectively
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; uptake coefficients of 1.2E-5 in dry conditions
Reference Substance and Reference Substance Results	values were compared with available measurements and suggested broad agreement; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively
	Metric 2:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study type.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to this study type.

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Study Citation:	Navea, J. G., Young, M. A., Xu, S. H., Grassian, V. H., Stanier, C. O. (2011). The atmospheric lifetimes and concentrations of cyclic methylsiloxanes octamethylcyclotetrasiloxane (D(4)) and decamethylcyclopentasiloxane (D(5)) and the influence of heterogeneous uptake. Atmospheric Environment 45(18):3181-3191.
OECD Harmonized Template:	Miscellaneous
HERO ID:	835791

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome(s) of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study type.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups (if applicable) were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	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(s).
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Panagopoulos Abrahamsson, D., Warner, N. A., Jantunen, L., Jahnke, A., Wong, F., Macleod, M. (2020). Investigating the presence and persistence of volatile methylsiloxanes in Arctic sediments. Environmental Science: Processes & Impacts 22(4):908-917.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836345

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane (D4)
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13C4-D4 (internal standard) Moravek Biochemicals Inc., Brea, California, USA; Sigma-Aldrich Sweden AB, Stockholm, Sweden; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Fugacity-based multimedia model; previously reported Koc, deltaHow and deltaHoc not specified; model inputs not specified; two different model scenarios: 1- using previously reported Koc and deltaHow 2-Koc and deltaHoc
System Type Design	steady state, non-equilibrium (Level III) model
Sampling Frequency and Sampling Details	samples collected in summer and fall months of 2014 to 2016; sediment and wastewater from Arctic regions: average concentration in Svalbard sediment = 0.42±0.39 ng/g wet weight, in Svalbard wastewater = 39.8±11.8 ng/L
Test Temperature	not specified
Results Details	Modeled distributions: scenario-1 (winter) ca. 2% sediment, 98% water, 0% air, scenario-1 (summer) ca. 81% sediment, 13% water, 6% air (summer); scenario-2 (winter) ca. 60% sediment, 40% water, 0% air, scenario-2 (summer) ca. 90% sediment, 10% water, 0% air; concentrations in sediment predicted from concentrations in wastewater in scenario 2 were in good agreement with measured concentrations, whereas in scenario 1, predicted concentrations were 2 to 4 orders of magnitude lower; differences in the predicted concentrations are more likely to be attributed to Koc and deltaHoc than to uncertainty in environmental parameters or emission rates
Analytical Method and Analytical Details	sediment samples were extracted with a modified purge and- trap method and quantification by GC/MS, wastewater samples extracted and analyzed by headspace GC/MS; LOQ for sediment samples calculated by multiplying the standard deviation within nine extraction blanks by 10 times; for wastewater samples LOQ = 29.4 ng/L, defined as ave field blank concentration + 10X the standard dev of the field blank (n=3)
Transformation Products, Statistics, and Kinetics	not reported; values below the LOQ were treated as zeros; average recovery in sediment samples ranged from 86±19 to 91±11% and 82±14% in wastewater samples (supplemental document); correlation between concentrations and TOC not considered significant - R-squared: 0.008, coefficient: 0.11, p-value: 0.088
Reference Substance and Reference Substance Results	field blanks included; 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 of analytical standard 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			

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Study Citation:	Panagopoulos Abrahamsson, D., Warner, N. A., Jantunen, L., Jahnke, A., Wong, F., Macleod, M. (2020). Investigating the presence and persistence of volatile methylsiloxanes in Arctic sediments. Environmental Science: Processes & Impacts 22(4):908-917.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836345

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	This metric is not applicable to this type of study.
	Metric 6:	Testing Conditions	Low	Details not reported.
	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.
	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	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques and between study groups were considered.
	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	Critical model input details were omitted or cited to previous work.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Low	Due to limited information, evaluation of the reasonableness of the study results was not possible.
	Metric 18:	QSAR Models	Low	The QSAR model had a defined, unambiguous endpoint; however, full details regarding input parameters were not reported.

Overall Quality Determination Medium

Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2017). Temperature Dependence of the Organic Carbon/Water Partition Ratios (K-oc) of Volatile Methylsiloxanes. Environmental Science & Technology Letters 4(6):240-245.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3985559

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Hexane; Hydrolysis DT50 = 3.7 d at pH 7, 25 deg C; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma-Aldrich, Sweden AB, Stockholm, Sweden; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Log Kaw determined in a purge-and trap system.; 6 mg dry sediment spiked with 15000 ng/uL test substance (60 ng/mg in sediment, 40% spiking efficiency), left to equilibrate over night. Sediment submerged in 300 mL Milli-Q water; replicates = 3
System Type Design	Purge-and-trap system
Sampling Frequency and Sampling Details	8 time points over 4 days; Purge-and-trap system continuously stirred and headspace purged with nitrogen and filtered through an SPE column, chemicals purged from headspace collected on second SPE and eluted with DCM; Bulk sediment and water also analyzed
Test Temperature	5, 10, 15, 21, and 25 deg C
Results Details	Log Kaw = 2.06 (5 deg C), 2.29 (10 deg C), 2.51 (15 deg C), 2.92 (21 deg C), and 3.09 (25 deg C) {From Table S4}
Analytical Method and Analytical Details	NR; NR
Transformation Products, Statistics, and Kinetics	NR; NR; Volatilization rate: -8.43E-3 to -1.06E-2 %/hr 95 deg C), -5.58E-2 to -1.07E-1 %/hr (10 deg C), -7.49E-2 to -5.59E-2 %/hr (15 deg C), -7.38E-2 to -1.10E-1 %/hr (25 deg C)
Reference Substance and Reference Substance Results	1,4-Dichlorobenzene and alpha-hexachlorocyclohexane; 1,4-DCB log Kaw = -0.46, -0.69, -0.95, -1.06, -1.16a-HCH log Kaw = -3.90, -3.72, -4.36, -4.61, and -4.86; at 25, 21, 25, 10, and 5 deg C

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
	Metric 1: Test Substance Identity	High	The test substance was identified by name.
	Metric 2: Test Substance Purity	Medium	The test substance source but not purity was reported.
Domain 2: Test Design			
	Metric 3: Study Controls	Medium	Solid-less controls were not reported.
	Metric 4: Test Substance Stability	Medium	Test substance preparation but not storage were reported.
Domain 3: Test Conditions			
	Metric 5: Test Method Suitability	High	The test method was suitable for the substance.
	Metric 6: Testing Conditions	Low	Some sediment and water characteristics were not reported.
	Metric 7: Testing Consistency	High	Test conditions were consistent across replicates and study groups.
	Metric 8: System Type and Design	High	The system was allowed to equilibrate.
Domain 4: Test Organisms			

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Study Citation:	Panagopoulos, D., Jahnke, A., Kierkegaard, A., Macleod, M. (2017). Temperature Dependence of the Organic Carbon/Water Partition Ratios (K-oc) of Volatile Methylsiloxanes. Environmental Science & Technology Letters 4(6):240-245.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3985559

			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	High	The outcome assessment methodology was appropriate for determining sorption.
	Metric 12:	Test Substance Purity	High	Sampling methods were described and frequency for volatility and sorption was acceptable.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty and variability were 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 not reported. Raw data was not reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The model for sorption accounting for volatility and hydrolytic loss was described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were not compared to other values making verification of the plausibility difficult, although reference substances were used as benchmark chemicals to calibrate the volatilization model.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination Medium

Study Citation:	Sanchís, J., Martínez, E., Ginebreda, A., Farré, M., Barceló, D. (2013). Occurrence of linear and cyclic volatile methylsiloxanes in wastewater, surface water and sediments from Catalonia. Science of the Total Environment 443:530-538.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002481

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	isotopically labeled; analytical standard from Sigma Aldrich; monitoring samples; 98%
Test Method Details, Test Condition Details, and Test Consistency Details	24 hour integrated wastewater samples (influents and effluents) were collected from 17 WWTPs in Catalonia (NE, Spain); daily samples (1 week) were collected from plant in Barcelona metropolitan area.; Not Reported; 17 WWTPs, similar treatment methods
System Type Design	primary and secondary treatment types, biological treatment, and anaerobic digestion.
Sampling Frequency and Sampling Details	not specified; Samples stored at -4C in glass bottles prior to analysis (within 24 hrs).
Test Temperature	not specified
Results Details	Overall removal was ca. 77% reduction in D4 concentrations. Influent concentration (ng/L) mean = 324, median = 210, range = <MLOQ - 1089±441; effluent concentration (ng/L) mean = 76.0, median = 18.9, range ND or <MLOQ up to 476±2.3. Concentrations of D4 in secondary effluents were ca. 10x smaller compared to influent concentrations and tertiary effluent concentrations were ca. 1.1x lower compared to the secondary effluent concentrations.
Analytical Method and Analytical Details	GC–(triple quadrupole QqQ)–MS/MS method using selected reaction monitoring (SRM) mode; D4: instrumental limit of detection (ILOD) = 0.6 pg, instrumental limit of quantification (ILOQ) = 2.0 pg, instrumental linearity = 0.9968, sensitivity = 1.18; Interday-accuracy (25 pg/uL) = 8.4%; blanks included
Transformation Products, Statistics, and Kinetics	not specified; ±std dev; not specified
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source of the test substance was reported; source and purity of the analytical standard reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions (e.g., temperature); however, the omissions were not likely to have a substantial impact on study results.

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Study Citation:	Sanchís, J., Martínez, E., Ginebreda, A., Farré, M., Barceló, D. (2013). Occurrence of linear and cyclic volatile methylsiloxanes in wastewater, surface water and sediments from Catalonia. Science of the Total Environment 443:530-538.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002481

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	High	Test conditions were consistent across study groups.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study.
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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Miscellaneous
HERO ID:	6989160

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	No; Aldrich; NR; 97% or better
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent water and sludge samples were collected Sept 6, 2006; Bekkelaget sewage treatment plant, Inner Oslofjord; not applicable (field samples)
System Type Design	not applicable (field samples)
Sampling Frequency and Sampling Details	once; sampling, storing and transport details referenced
Test Temperature	not applicable (field samples)
Results Details	influent water 0.1 µg/L; effluent water <0.03 µg/L; influent sludge 1100 ng/g dry weight; effluent sludge 2700 ng/g dry weight
Analytical Method and Analytical Details	GC-MS; GC: Splitless inject, Helium carrier gas, Temp program: 35°C, 3min, 7°/min, 130°C, 0 min, 30°/min, 325°C, 5 min. Inter temp: 250°C; MS: Ion source temp: 200°C; Electron impact w/acceler at 8000V, Resolution: 10000 at 5%; ion monitoring at 295.1037 m/z
Transformation Products, Statistics, and Kinetics	not reported; not applicable (field samples); not applicable (field samples)
Reference Substance and Reference Substance Results	not applicable (field samples); 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	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	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.

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Study Citation:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Miscellaneous
HERO ID:	6989160

			EVALUATION	
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed 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 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	The target chemical concentrations were reported and detection limits were sensitive enough to follow decline of parent.
	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:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Miscellaneous
HERO ID:	6989160

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Methanol; NR; NR; NR
Radiolabel, Source, State, Purity	No; Aldrich; NR; 97% or better
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent water and sludge samples were collected Sept 21-22, 2006; VEAS sewage treatment plant, Inner Oslofjord; not applicable (field samples)
System Type Design	not applicable (field samples)
Sampling Frequency and Sampling Details	once; sampling, storing and transport details referenced
Test Temperature	not applicable (field samples)
Results Details	influent water 0.2 µg/L; effluent water 0.1 µg/L; influent sludge <180 ng/g dry weight; effluent sludge 1000 ng/g dry weight
Analytical Method and Analytical Details	GC-MS; GC: Splitless inject, Helium carrier gas, Temp program: 35°C, 3min, 7°/min, 130°C, 0 min, 30°/min, 325°C, 5 min. Inter temp: 250°C; MS: Ion source temp: 200°C; Electron impact w/acceler at 8000V, Resolution: 10000 at 5%; ion monitoring at 295.1037 m/z
Transformation Products, Statistics, and Kinetics	not reported; not applicable (field samples); not applicable (field samples)
Reference Substance and Reference Substance Results	not applicable (field samples); 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	N/A	The metric is not applicable to this study type.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study type.
	Metric 7:	Testing Consistency	High	Test conditions were consistent across samples.
	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.

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Study Citation:	Schlabach, M., Andersen, M. S., Green, N., Schøyen, M., Kaj, L. (2007). Siloxanes in the environment of the inner Oslofjord (Statlig program for forurensningsovervåking).
OECD Harmonized Template:	Miscellaneous
HERO ID:	6989160

			EVALUATION	
Domain		Metric	Rating	Comments
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 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	The target chemical concentrations were reported and detection limits were sensitive enough to follow decline of parent.
	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:	Shoeib, M., Schuster, J., Rauert, C., Su, K., Smyth, S. A., Harner, T. (2016). Emission of poly and perfluoroalkyl substances, UV-filters and siloxanes to air from wastewater treatment plants. Environmental Pollution 218:595-604.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3463879

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	NA; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Internal standard included 14-C D4; NR; Not Reported; Not Reported
Test Method Details, Test Condition Details, and Test Consistency Details	Passive air sampling used to derive air concentrations at 8 WWTPs.; Emissions to air calculated based on a simplified Gaussian dispersion model for a point source.; 8 WWTPs evaluated
System Type Design	treatment processes included secondary activated sludge (AS), secondary extended aeration (EA) and facultative seasonal discharge lagoons (LG)
Sampling Frequency and Sampling Details	sampling conducted in summer 2013 and winter 2014; samplers were deployed for ca 2 month periods; Samplers were placed at WWTPs (ca. 2 m above the water surface) and 100-150 m away from the active WWTP area.
Test Temperature	summer: average air temp 12.5-13.8°C, average water temp 17-19.8°C; winter: average air temp -7.0 - -5.6°C, average water temp 9.0-13.8°C
Results Details	SIP disk to air partition coefficient (KSIP-A)
Analytical Method and Analytical Details	GC-MS (SIM mode); recovery = 67±10%; LOD 0.72 ng/m3
Transformation Products, Statistics, and Kinetics	not applicable; Statistical significance set as $p<0.05$ indicate significant correlations while values of $p>0.05$ indicate no significant correlation.; Estimated emission rates (g/year/tank0) for D4 were calculated as follows: at urban-secondary activated sludge WWTPs: UR-AS-1 Summer = 4292, Winter = 6932, UR-AS-2 Summer = 3381, Winter = 8911, UR-AS-3 Summer = 9394, Winter = 7035; at town-secondary extended aeration WWTPs: TW-EA-1 Summer = 1036, Winter = 5617, TW-EA-2 Summer = 1317, Winter = 8326, TW-EA-3 Summer = 1220, Winter = 5336; at rural-facultative seasonal discharge lagoons WWTPs: RU-LG-1 Summer = 742, Winter =4477, RU-LG-2 Summer = 1351, Winter = 6626
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source was reported; analytical standard reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicble to the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	High	Appropriate test conditions for the study were reported.
	Metric 7:	Testing Consistency	High	Conditions were consistent across study groups.

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Study Citation:	Shoeib, M., Schuster, J., Rauert, C., Su, K., Smyth, S. A., Harner, T. (2016). Emission of poly and perfluoroalkyl substances, UV-filters and siloxanes to air from wastewater treatment plants. Environmental Pollution 218:595-604.
OECD Harmonized Template:	Miscellaneous
HERO ID:	3463879

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study.
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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical methods or kinetic calculations were clearly described and address the dataset.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; Volatilization; Volatilization
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	Hamaker Method; Not Reported; Not Reported
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	Based on the Hamaker Method for dry soils, D4 is categorized as moderately volatile; from wet soils it is highly volatile as it is from water.
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	Limited details reported in secondary source.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	No study control details reported in secondary source.
Metric 4:	Test Substance Stability	N/A	No test substance stability details reported in secondary source.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	N/A	No study details reported in secondary source relevant to the test method suitability.
Metric 6:	Testing Conditions	N/A	No testing conditions details reported in secondary source.
Metric 7:	Testing Consistency	N/A	No testing consistency details reported in secondary source.
Metric 8:	System Type and Design	N/A	No system type and design details reported in secondary source.
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:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	Limited details reported in secondary source.
Metric 12:	Test Substance Purity	N/A	No sampling methods and design details reported in secondary source.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	N/A	No confounding variable details reported in secondary source.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Medium	Limited details reported in secondary source.
Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	Results are qualitative.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Uninformative	Results are qualitative and appear to be estimated.
Metric 18:	QSAR Models	N/A	This metric is not applicable to this type of study.

Overall Quality Determination — Uninformative

* Related References: Hamaker method cited from Lyman et al. 1982. (HERO ID 7421). Also cites Versar Inc. 1985. Physical-chemical properties and categorizatlon of RCRA wastes according to volatility. Research Triangle Park, NC: U.S. Environmental Protection Agency. Office of Air Quality Planning andStandards. EPA 450/3-85-007. (Not in HERO at the time of extraction)

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; volatilization; volatilization
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	Not Reported; Not Reported; Not Reported
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	As a pure substance, D4 would be considered moderately volatile having ambient vapor pressures in the 10^-3 to 10 mm Hg range. In water, a Henry's Law constant of 0.78 atm-m3/mol classified D4 as a highly volatile substance.
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	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.
Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study type.

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

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

Overall Quality Determination — Uninformative

* Related References: Cited from SRC. 1985. Syracuse Research Corp. Technical support document octamethylcyclotetrasiloxane. Contract No. 58-02-4209, Task 5. Test Rules Development Branch, Existing Chemicals Assessment Division, Office of Toxic Substances, Washington, DC. May 29, 1985. (Not in HERO at the time of extraction)

Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; Volatilization; Volatilization
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	empirical relationship of soil/solution partitioning coefficient with rates of sorption/desorption; discussed by Karickhoff and Morris (1985); Not Reported; Not Reported
System Type Design	NR
Sampling Frequency and Sampling Details	NR; NR
Test Temperature	NR
Results Details	The half-life for desorption from aquatic sediment can be estimated as 2.9 or 19.0 hours depending on the value assumed for Kd
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	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	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			

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Study Citation:	Silicones Health Co., (1986). Environmental risk assessment for octamethylcyclotetrasiloxane (OMCTS).
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889398

		EVALUATION		
Domain		Metric	Rating	Comments
	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	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	N/A	These omissions were likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Uninformative	Lack of information was likely to have a substantial impact on study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Uninformative	Results are estimated.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Uninformative

* Related References: cited from Karickhoff SW, Morris KR. 1985. Sorption dynamics of hydrophobic pollutants in sediment suspensions. Environ. Toxicol. Chem. 4:469-479.(Not in HERO at the time of extraction)

Study Citation:	UC, (1994). Screening experiments to evaluate the aerosol forming potential of selected volatile silicone compounds including cyclopentasiloxane, decamethyl- with cover letter dated 06/30/94.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889165

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	No; Qualitative results; Qualitative results
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	D5 was added to a reactive gas-NO2-air mixture and irradiated in a series of repeated 6-hour irradiations.; Not Reported; Not Reported
System Type Design	Indoor Teflon environmental chamber
Sampling Frequency and Sampling Details	Not Reported; Not Reported
Test Temperature	Not Reported
Results Details	Results indicate that based on D5 not forming particles in the size range of 0.2-0.6 µm and not contributing to aerosol formation, D4 is unlikely to contribute to small particle and/or formation in the atmosphere
Analytical Method and Analytical Details	A condensation nuclei counter was used to measure small particle concentrations and a nephelometer and FTIR were used to monitor light scattering coefficient; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	alpha-pinene; significant aerosol formed

EVALUATION

Domain	Metric	Rating	Comments
Domain 1: Test Substance			
Metric 1:	Test Substance Identity	Uninformative	The test substance was D5.
Metric 2:	Test Substance Purity	Uninformative	The test substance was D5.
Domain 2: Test Design			
Metric 3:	Study Controls	High	Controls were included.
Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	Low	Applied test chemical concentrations were not reported.
Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions.
Metric 7:	Testing Consistency	High	Test conditions were consistent.
Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.

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Study Citation:	UC, (1994). Screening experiments to evaluate the aerosol forming potential of selected volatile silicone compounds including cyclopentasiloxane, decamethyl- with cover letter dated 06/30/94.
OECD Harmonized Template:	Miscellaneous
HERO ID:	5889165

		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	Uninformative	Qualitative results; test substance was D5.
Metric 12:	Test Substance Purity	Low	Details regarding sampling methods of the outcome were not fully reported.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study type.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	Uninformative	Limited detail regarding analytical methods. Qualitative results for D5.
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	Reported results were based on D5.
Metric 18:	QSAR Models	N/A	The metric is not applicable to this study type.

Overall Quality Determination — Uninformative

Study Citation:	van Egmond, R., Sparham, C., Hastie, C., Gore, D., Chowdhury, N. (2013). Monitoring and modelling of siloxanes in a sewage treatment plant in the UK. Chemosphere 93(5):757-765.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557762

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; WWTP removal; Field study; WWTP removal; Field study
Solvent, Reactivity, Storage, Stability	NA; NR; NR; NR
Radiolabel, Source, State, Purity	13C4 (internal standard); Broadholme sewage treatment plant, Wellingborough, UK (sample); Gillingham, UK (internal standard); NR; >98% (internal standard)
Test Method Details, Test Condition Details, and Test Consistency Details	Wastewater treatment samples were collected at the Broadholme sewage treatment plant in Wellingborough, UK, on March 22 and 23 and July 7 and 8 of 2010.; Operational conditions (HRT, SRT, flow rate, temperature) were not reported. WWTP treats primarily domestic waste (< 15% industrial input).; NA
System Type Design	Primary settle, aeration tank, oxidation tank, trickling filter bed with settle and sand filter
Sampling Frequency and Sampling Details	Every 1.5 hours over 2 days for 2 sampling campaigns; March: Degritted raw sewage and final effluent samples were collected every 1.5 hours by autosamplers (8 1L glass tubes, ~500 mL shot, two shots per tube, for a total of 16 aliquots over 22.5 hours). July: grab samples collected from primary settled sewage influent and sludge; oxidation tank channel and effluent; activated sludge channel aeration tank and effluent; trickling filter channel pre settler, pre sand filter, and post sand filter
Test Temperature	NR
Results Details	March data: Details reported in supplemental material. Concentrations in influent raw sewage samples were generally below detection limit; only 2 of 8 samples were quantifiable (0.22 and 0.30 ug/L). Effluent concentrations were not reported here. July data: Sample point: (July 7), (July 8) Primary settled sewage influent: < 0.200 ug/L, < 0.200 ug/L Primary settled sludge: < 10 mg/kg dw, < 10 mg/kg dw Oxidation tank channel: 1.03 ug/L, 0.93 ug/L Oxidation tank channel effluent: 0.02 ug/L, 0.014 ug/L Activated sludge channel aeration tank: n.a., 1.53 ug/L Activated sludge channel aeration tank 1-4 effluent: 0.011 ug/L, 0.013 ug/L Activated sludge channel aeration tank 5-8 effluent: 0.010 ug/L, 0.013 ug/L Trickling filter channel pre settler: < 0.200 ug/L, < 0.200 ug/L Trickling filter channel pre sand filter: < 0.010 ug/L, < 0.010 ug/L Trickling filter channel post sand filter: 0.012 ug/L, 0.011 ug/L
Analytical Method and Analytical Details	HS-GC/MS in electron ionization mode and single ion monitoring; Extraction recovery: 73-114%; LOQ: 0.2 ug/L (influent), 0.01 ug/L (effluent)
Transformation Products, Statistics, and Kinetics	NR; NR; NA
Reference Substance and Reference Substance Results	NA; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The WWTP sample source was reported; internal standard sources and purity were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Negative controls are not required for monitoring studies.
	Metric 4:	Test Substance Stability	High	Sample preparation was reported, sample storage was not.

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Study Citation:	van Egmond, R., Sparham, C., Hastie, C., Gore, D., Chowdhury, N. (2013). Monitoring and modelling of siloxanes in a sewage treatment plant in the UK. Chemosphere 93(5):757-765.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2557762

		EVALUATION	
Domain	Metric	Rating	Comments
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	Field study method was appropriate for the study type.
Metric 6:	Testing Conditions	Low	Limited WWTP operational conditions were reported.
Metric 7:	Testing Consistency	High	Sampling and analytical methods were kept constant during the study.
Metric 8:	System Type and Design	N/A	Not applicable for this study type.
Domain 4: Test Organisms			
Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
Metric 10:	Sampling Methods	N/A	Not applicable for this study type.
Domain 5: Outcome Assessment			
Metric 11:	Test Substance Identity	Medium	Removal efficiency was not reported by the study authors; increased concentrations were detected in the effluent compared to the influent, which was not discussed by the study authors.
Metric 12:	Test Substance Purity	High	Sampling methods were well described and applied appropriately.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Variability and uncertainty was not discussed for D4 specifically.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable for this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	High	Raw date was reported for the July grab samples. The analytical method was appropriate; extraction recovery and limits of quantification were reported.
Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other			
Metric 17:	Verification or Plausibility of Results	Medium	The results are reasonable based on the method but without WWTP operational conditions, limited broader conclusions can be drawn.
Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Wang, D. G., Aggarwal, M., Tait, T., Brimble, S., Pacepavicius, G., Kinsman, L., Theocharides, M., Smyth, S. A., Alaee, M. (2015). Fate of anthropogenic cyclic volatile methylsiloxanes in a wastewater treatment plant. Water Research 72:209-217.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833855

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; WWTP samples containing D4; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	A WWTP, receiving 70% of its wastewater from homes and 30% from businesses, was sampled in January and March.; Six water samples were collected without headspace. Additional samples were collected for TOC analysis.; Not reported
System Type Design	WWTP used activated sludge process including intake screens, grit tanks, primary and secondary settling tanks, fine-bubble aeration tanks, and an outfall pipe.
Sampling Frequency and Sampling Details	Samples were collected at 7 a.m., 10 a.m., 4 p.m., and 10 p.m in March but only 10 a.m. January.; Influent, primary effluent, and final effluent water samples were collected, as well as primary and waste activated sludge. Grab samples were collected (on-line samplers had high backgrounds).
Test Temperature	Not reported
Results Details	D4 removal % (influent and final effluent): 96%.
Analytical Method and Analytical Details	GC-MS; Not reported
Transformation Products, Statistics, and Kinetics	Not reported; Influent concentration range: 0.166-1.13 µg/L; final effluent: <0.009-0.026 µg/L.; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was identified in field samples using an appropriate analytical method.
Domain 2: Test Design				
	Metric 3:	Study Controls	Medium	Controls were not reported but were likely reported in the supporting information so the omission is unlikely to have an impact on the study results.
	Metric 4:	Test Substance Stability	Medium	Details regarding the test sample preparation was provided in supporting information.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported in the study but were likely reported in the supporting information.

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Study Citation:	Wang, D. G., Aggarwal, M., Tait, T., Brimble, S., Pacepavicius, G., Kinsman, L., Theocharides, M., Smyth, S. A., Alaee, M. (2015). Fate of anthropogenic cyclic volatile methylsiloxanes in a wastewater treatment plant. Water Research 72:209-217.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833855

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Testing consistency cannot be determined since testing conditions were not reported in the study; however, no inconsistencies were noted in the discussion so the omission is 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	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were described and were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Concentrations were reported at each sampling point. The variability was acceptable and not likely to impact the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable and similar to other reported values.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Wang, D. G., Steer, H., Tait, T., Williams, Z., Pacepavicius, G., Young, T., Ng, T., Smyth, S. A., Kinsman, L., Alaee, M. (2013). Concentrations of cyclic volatile methylsiloxanes in biosolid amended soil, influent, effluent, receiving water, and sediment of wastewater treatment plants in Canada. Chemosphere 93(5):766-773.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833827

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	Internal standard 13-C-4 D4 obtained from Moravek (Brea, CA, USA).; Gelest (Morrisville, PA, USA).; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	D4 concentrations were measured in influent and effluent water samples.; Test conditions at each WWTP were reported in the supplementary information.; Not Reported
System Type Design	Treatment types at 11 WWTPs: chemically-assisted primary treatment (1); secondary activated sludge (3); lagoon (7).
Sampling Frequency and Sampling Details	Grab samples were collected instead of composite samples due to contamination caused by on-line sampling instruments.; Aqueous samples were collected without headspace and crimped in 100mL serum bottles.
Test Temperature	Not reported
Results Details	Mean removal efficiency (n=12): 98%. Two effluent concentrations were <LOQ (0.009 µg/L).
Analytical Method and Analytical Details	GC-MS; Agilent 6890 GC with Agilent 5975B MSD. Water MDL: 0.009 µg/L; LOQ: 0.031 µg/L; recovery: 100±21%. Sediment MDL: 0.003 µg/g dw; LOQ: 0.011 µg/g dw; Recovery: 69±10%. Soil MDL: 0.00 µg/g dw; LOQ: 0.025 µg/g dw; recovery: 70±12%.
Transformation Products, Statistics, and Kinetics	Not reported; Range of removal efficiencies: >95 - >99%; Not reported
Reference Substance and Reference Substance Results	Not reported; Not reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was identified in field samples using an appropriate analytical method.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blanks were collected during sampling.
	Metric 4:	Test Substance Stability	High	The preparation and storage of the samples containing the test substance was reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	The testing conditions were only reported in the supplementary information and are unlikely to have an impact on the study results.

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Study Citation:	Wang, D. G., Steer, H., Tait, T., Williams, Z., Pacepavicius, G., Young, T., Ng, T., Smyth, S. A., Kinsman, L., Alaee, M. (2013). Concentrations of cyclic volatile methylsiloxanes in biosolid amended soil, influent, effluent, receiving water, and sediment of wastewater treatment plants in Canada. Chemosphere 93(5):766-773.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833827

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	The testing conditions were reported in the supplementary information but the omission is 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	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was reported in the mean influent and effluent concentrations and does not influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The data reporting was appropriate and the analytical method was suitable to detect test substance concentrations at the environmental levels.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical methods for calculating the results were reported and appropriate
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Wang, D.,eGao, Du, J., Pei, W.,ei, Liu, Y., Guo, M. (2015). Modeling and monitoring cyclic and linear volatile methylsiloxanes in a wastewater treatment plant using constant water level sequencing batch reactors. Science of the Total Environment 512:472-479.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002250

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental: monitoring study; experimental: monitoring study
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Samples stored on ice for shipment, extraction and analysis with 2 hrs; Not Reported
Radiolabel, Source, State, Purity	13C4-D4, Moravek, Brea, CA (purity: >98%); Gelest, Morrisville, PA; Not Reported; >98%
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring of a municipal WWTP located in Dalian, China. Removal mechanisms evaluated using a fugacity-based treatment plant model.; WWTP capacity: 30,000 m3/d.; Not Reported
System Type Design	Treatment process: constant water level sequencing batch reactors
Sampling Frequency and Sampling Details	Each day from May 20th to May 26th samples were collected at 10 am; Raw water influent, effluent, and sewage sludge grab samples
Test Temperature	not reported
Results Details	influent mean concentration = 0.369 µg/L, final effluent concentration = 0.097µg/L removal from the aqueous phase = 73%; mean concentration in sludge = 929 µg/kg, waste sludge accounts for ca. 17% removal; volatilization accounts for 69% removal
Analytical Method and Analytical Details	GC-MS; samples spiked with internal standards.; LOQ set as 10x the std dev; recoveries 65-94%. specific information for D4 in supplemental doc
Transformation Products, Statistics, and Kinetics	not reported; Monte Carlo simulation used for uncertainty analysis; not applicable
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study.

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Study Citation:	Wang, D.,eGao, Du, J., Pei, W.,ei, Liu, Y., Guo, M. (2015). Modeling and monitoring cyclic and linear volatile methylsiloxanes in a wastewater treatment plant using constant water level sequencing batch reactors. Science of the Total Environment 512:472-479.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002250

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was acceptable; additional information may be found in supporting document.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Whelan, M. J. (2013). Evaluating the fate and behaviour of cyclic volatile methyl siloxanes in two contrasting North American lakes using a multi-media model. Chemosphere 91(11):1566-1576.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2698959

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Calculation; Calculation
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	QWASI (Quantitative Water Air Sediment Interaction) model; a simple steady-state non-equilibrium multi-media fate and transport model. Environmental persistence is estimated based on predicted concentrations in water and sediment and relative contribution of volatilization, hydrolysis, burial in sediment and advection in outflow.; Lake Ontario and Lake Pepin were used as model lakes; characterization of lake parameters described (source table 2). Model inputs (source table 1) include molar mass: 297 g/mol, aqueous solubility: 0.056 g/m3, vapor pressure: 122 Pa, melting point: 17.5°C, Log Kow: 6.98, Log Kaw: 2.69, Log Koc: 4.22; Water half-life at 25°C = 9.6 hours;Water half-life at 9°C = 71 hours;Water half-life at 14°C = 37 hours;Sediment half-life at 25°C = 0.31 years; Sediment half-life at 9°C = 2.3 years.; Flux to wastewater = 280 mg/cap yr, removal in STP = 99%, total flux to Lake Ontario and Lake Pepin estimate was 20 kg/yr and 12 kg/yr, respectively.
System Type Design	Lake Ontario (9°C) fraction of total mass predicted to be in the dissolved phase = 0.998 Lake Pepin (14°C) fraction of total mass predicted to be in the dissolved phase = 0.983
Sampling Frequency and Sampling Details	not applicable; not applicable
Test Temperature	Lake Ontario (9°C); Lake Pepin (14°C)
Results Details	Predicted persistence: Lake Ontario - water = 4 days, sediment = 869 days, and overall persistence = 4 days; Lake Pepin - water = 2 days, sediment = 109 days, and overall persistence = 3 days. Predicted Flux estimates (% of all loss processes): Lake Ontario - JQ = 0.16%, JRQ = 98.67%, JRS = <0.001%, JB = <0.001%, JWA = 1.17%; Lake Pepin - JQ = 14.88%, JRQ = 77.94%, JRS = 0.10%, JB = 0.65%, JWA = 7.43%. (JQ: advective outflow; JRW: reaction in water; JRS: reaction in sediment; JB: sediment burial; JWA: net flux from water to air)
Analytical Method and Analytical Details	Model estimation; not applicable
Transformation Products, Statistics, and Kinetics	not reported; not reported; Steady-state predicted to reach 95% in 8 days for Lake Pepin and 13 days for Lake Ontario.
Reference Substance and Reference Substance Results	not applicable; Parameters affecting model uncertainty include Koc and emission profiles.

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 the study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to the study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.

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Study Citation:	Whelan, M. J. (2013). Evaluating the fate and behaviour of cyclic volatile methyl siloxanes in two contrasting North American lakes using a multi-media model. Chemosphere 91(11):1566-1576.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2698959

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	High	Appropriate conditions were reported.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	High	Steady-state was evaluated.
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	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 the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty was defined; a sensitivity analysis indicated key parameters affecting confidence in results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	High	The model had a defined, unambiguous endpoint.

Overall Quality Determination High

Study Citation:	Whelan, M. J., Estrada, E., van Egmond, R. (2004). A modelling assessment of the atmospheric fate of volatile methyl siloxanes and their reaction products. Chemosphere 57(10):1427-1437.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6835684

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	no; calculation; calculation
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	The atmospheric model was developed to predict the concentration of D4 in the vapor, dissolved and adsorbed phase in the troposphere.; Concentrations over land are predicted; model used hypothetical release rate of 10 kton/a; precipitation rate of 1 m/a; mean air temperature of 5°C; hydroxyl radical concentration set at 5E-5 molecules/cm3 and D4 hydroxyl radical reaction rate constant of 1.26E-12 cm3/mol/sec.; The model is constructed around the mass balance equation for each compound, the atmospheric conditions were assumed to be of uniform composition and fully mixed.
System Type Design	Model equations based on the environment that has a surface area (a) equal to the area of the contiguous continental USA (9373000 km2) and a height (h) equal to the approximate altitude of the tropopause (6000 m)
Sampling Frequency and Sampling Details	not applicable; not applicable
Test Temperature	5°C
Results Details	steady-state concentrations in the vapor, dissolved and adsorbed form were 3.02E-5, 3.28E-05 and 5.74 umol/m3, respectively.
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	Not Reported; "it should be noted that a number of gross simplifications have been made which mean that it is unlikely to yield accurate absolute predictions of concentrations."; 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	N/A	This metric is not applicable to this type of study.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	This metric is not applicable to this type of study.
	Metric 4:	Test Substance Stability	N/A	This metric is not applicable to this type of study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	A modelling study based on experimental data from literature and environmental factors is appropriate for the selected endpoints.
	Metric 6:	Testing Conditions	High	The model details were included.
	Metric 7:	Testing Consistency	N/A	This metric is not applicable to this type of study.

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Study Citation:	Whelan, M. J., Estrada, E., van Egmond, R. (2004). A modelling assessment of the atmospheric fate of volatile methyl siloxanes and their reaction products. Chemosphere 57(10):1427-1437.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6835684

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	The model assumed equilibrium; however, this is unrealistic.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	This metric is not applicable to this type of study.
	Metric 10:	Sampling Methods	N/A	This metric is not applicable to this type of study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	Assessment methodology was appropriate.
	Metric 12:	Test Substance Purity	N/A	This metric is not applicable to this type of study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Variables that could affect uncertainty were discussed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric is not applicable to this type of study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The model results and inputs were reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	This metric is not applicable to this type of study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	Results were plausible based on current amount of available data.
	Metric 18:	QSAR Models	Medium	Model construction was reasonable.
Overall Quality Determination			**High**	

Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836352

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; D4
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; samples stored in sealed glass vessels at 4C; Not Reported
Radiolabel, Source, State, Purity	13C-labeled D4 (Cambridge Isotope Laboratories, Andover, MA, USA); Sigma-Aldrich, St. Louis, MO, USA; WWTP samples (aqueous and solid); not specified
Test Method Details, Test Condition Details, and Test Consistency Details	Monitoring of a papermaking factory coupled with a wastewater treatment plant located in Dongying City, Shandong Province, China, to examine chlorination and wastewater removal of D4 during the paper making process.; WWTP processe: primary clarifier, anaerobic tank, oxic tank, and secondary clarifier; total solid retention time ca. 14 days. pH of treatment steps: primary clarifier pH = 7.8−9.2, regulating tank pH = 6.8−7.1, anaerobic tank pH = 6.5−7.0, oxic tank pH = 6.9−7.2, and secondary clarifier pH = 6.9−7.1.; Not Reported
System Type Design	WWTP capacity: 6000 m3/d
Sampling Frequency and Sampling Details	Samples collected during July 2014, October 2014, and August 2015; 24h Composite samples were collected in glass tubes from primary and secondary effluents. Paper making processes - aqueous sample mean concentrations (μg/L) of D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, 28.0, 12.6, 3.65, 1.85, 6.75, and 0.078, respectively.WWTP processes - aqueous sample mean concentrations (μg/L) of D4 in influent of primary clarifier, effluent of primary clarifier, effluent of regulating tank, effluent of anaerobic tank, effluent of oxic tank, effluent of secondary clarifier, return sludge, excess sludge from secondary clarifier were 4.46, 4.19, 3.95, 5.30, 3.17, 1.14, 0.180, and 0.180, respectively.Paper making processes - solid sample mean concentrations (μg/g) of D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, 12.5E3, 6.52E3, 1.54E3, 645, 2.57E3, and 37.7, respectively.WWTP processes - solid sample mean concentrations (μg/g) of D4 in influent solids of primary clarifier, sludge of primary clarifier, sludge of anaerobic tank, sludge of oxic tank, return sludge, excess sludge from secondary clarifier were 3.01E3, 4.65E3, 516, 929, 1.61E3, and 1.61E3, respectively.Paper making processes - aqueous sample mean concentrations (μg/L) of monochlorinated D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, <LOQ, 23.5, 0.223, 0.014, <LOQ, and <LOQ, respectively.WWTP processes - aqueous sample mean concentrations (μg/L) of monochlorinated D4 in influent of primary clarifier, effluent of primary clarifier, effluent of regulating tank, effluent of anaerobic tank, effluent of oxic tank, effluent of secondary clarifier, return sludge, excess sludge from secondary clarifier were 2.73, 1.93, 1.73, 1.89, 1.17, 0.530, 0.153, and 0.153, respectively.Paper making processes - solid sample mean concentrations (μg/g) of monochlorinated D4 in pulping, pulp washing, chlorination, caustic extraction, hypochlorite, pulp refining, and paper formation were <LOQ, <LOQ, 15.1E3, 171, 8.31, <LOQ, and <LOQ, respectively.WWTP processes - solid sample mean concentrations (μg/g) of monochlorinated D4 in influent solids of primary clarifier, sludge of primary clarifier, sludge of anaerobic tank, sludge of oxic tank, return sludge, excess sludge from secondary clarifier were 3.32E3, 4.86E3, 888, 1.04E3, 1.26E3, and 1.26E3, respectively.
Test Temperature	Not Reported
Results Details	Mean removal efficiency = 76.2%; removal processes included biodegradation, sorption to sludge, volatilization, and hydrolysis
Analytical Method and Analytical Details	GC-MS; Aqueous samples - LOQ 1.6 ng/L, recovery ca. 88-94%, solid samples - LOQ 2.1 ng/g, recovery ca. 89-94%; all measured concentrations were corrected for field blanks.
Transformation Products, Statistics, and Kinetics	concentrations of D4D(CH2Cl) were measured; mean removal efficiency 80.8%; not reported; not reported
Reference Substance and Reference Substance Results	not reported; not reported

EVALUATION

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Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836352

EVALUATION

Domain	Metric		Rating	Comments
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	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were reported.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	Sampling methods were appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty were accounted for.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

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Study Citation:	Xu, L., He, X., Zhi, L., Zhang, C., Zeng, T., Cai, Y. (2016). Chlorinated methylsiloxanes generated in the papermaking process and their fate in wastewater treatment processes. Environmental Science & Technology 50(23):12732−12741.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836352

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

Study Citation:	Xu, L., Shi, Y., Cai, Y. (2013). Occurrence and fate of volatile siloxanes in a municipal wastewater treatment plant of Beijing, China. Water Research 47(2):715-724.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833877

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Domestic WWTP near Beijing City, China.; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	Water and sludge samples were collected from a municipal WWTP receiving 400,000 cubic meters of domestic wastewater.; Influent was split into two parallel secondary treatments: traditional (anaerobic-anoxic-oxic) and reversed (anoxic-anaerobic-oxic).; Traditional process: solid retention time: 6-7d. Hydraulic retention time: anaerobic: 1.5h, anoxic: 3h; oxic: 10.8h. Reverse process: solid retention time: 20-25 days. Hydraulic retention times: anoxic: 1.5 h; anaerobic: 2.5 h; oxic: 10.0 h.
System Type Design	Not reported
Sampling Frequency and Sampling Details	Sampling periods were conducted in April and January 2011. 24h composite samples were collected every 2 hours from primary effluent (pretreatment) and secondary effluent (post treatment).; Aqueous and sludge-liquid samples were collected in 4L glass bottles with no headspace. Stored at 4°C before sampling within 48 hrs.
Test Temperature	Not reported
Results Details	Removal efficiency (%) ranged from 59.3-92.7 overall. In traditional process 76.2-92.7% and 59.3-80.6% in the reversed process. Adsorption and elimination in the anaerobic units of both traditional and reversed A2/O processes via volatilization and degradation.
Analytical Method and Analytical Details	Solid-phase microextraction (SPME); GC-MS; Method detection limit: <1 ng/g; Relative standard deviation of measurements at 20 ng/g and 200 ng/g were within 2.1-7.3%.
Transformation Products, Statistics, and Kinetics	Not reported; Correlation coefficient (R^2) was between 0.9922 and 0.9997 for 0.05-10.00 µg/L; Not reported
Reference Substance and Reference Substance Results	8 field blank samples during two sample events. Lab blank runs for every sample.; No contamination indicated from lab or field blanks.

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance was identified in environmental samples using appropriate analytical methods.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate blank controls were used.
	Metric 4:	Test Substance Stability	High	The storage and preparation of the samples containing the test substance were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.

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Study Citation:	Xu, L., Shi, Y., Cai, Y. (2013). Occurrence and fate of volatile siloxanes in a municipal wastewater treatment plant of Beijing, China. Water Research 47(2):715-724.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833877

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	Some of the testing conditions were not reported but the omissions are unlikely to have a substantial impact on the study results.
	Metric 7:	Testing Consistency	High	There were no reported changes 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	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	The variability in the concentration measurements was reported and not likely to have an impact on the outcome assessment. No other confounding variables were noted.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	The overall removal percentages were reported as a range for 4 chemicals, which may have an impact on the outcome assessment.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	The statistical analysis was appropriate.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results are reasonable.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination — High

Study Citation:	Xu, L., Shi, Y., Wang, T., Dong, Z., Su, W., Cai, Y. (2012). Methyl siloxanes in environmental matrices around a siloxane production facility, and their distribution and elimination in plasma of exposed population. Environmental Science & Technology 46(21):11718-11726.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2558926

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Field study; air and soil partitioning; Field study; air and soil partitioning
Solvent, Reactivity, Storage, Stability	NA; NR; NR (air samples); Stored at -18 deg C (soil samples); NR
Radiolabel, Source, State, Purity	None; Air and soil samples from Shandong Province, China; Sigma-Aldrich, St. Louis, MO (analytical standard); NR; NA (samples); >98% (analytical standard)
Test Method Details, Test Condition Details, and Test Consistency Details	Field study conducted in Shandong Province, China, where air and soil samples were collected downwind of a facility which has been producing cyclic and linear methyl siloxanes products for more than 15 years.; NR; NR
System Type Design	Field study
Sampling Frequency and Sampling Details	Not reported.; 24 h air samples were collected at 7 points downwind of the facility using solid phase extraction cartridges. Soil samples were collected using a steel syringe.
Test Temperature	NR
Results Details	Results estimated from bar plot. Air (sites B1-7): 1.4E6, 9.5E5, 9.0E5, 7.9E5, 6.9E5, 4.2E5, and 2.1E5 ng/m^3. Not detected in soil.
Analytical Method and Analytical Details	GC/MS; LOQ: 0.5-1.0 ng/g (soil), 0.14-0.36 ng/m^3 (air, 24 h sampling); Percent recovery: 81-94% (soil), 86-92% (air)
Transformation Products, Statistics, and Kinetics	NR; Soil-outdoor air correlation: R^2 = 0.54, P value = 0.09, n = 5; NR
Reference Substance and Reference Substance Results	Field blank (results blank-corrected); 0.2-0.5 ng/g (soil), 0.07-0.1 ng/m^3 (air)

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The sample source was reported, the source and purity of the analytical standard was reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not required for field studies. Blanks were included and samples were blank-corrected.
	Metric 4:	Test Substance Stability	Medium	Limited sample storage details were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field monitoring study was appropriate for the test substance.
	Metric 6:	Testing Conditions	Low	No field conditions were reported.
	Metric 7:	Testing Consistency	Medium	Samples were collected consistently, presumably, although limited details were reported to support this.
	Metric 8:	System Type and Design	High	Field studies are assumed to be in dynamic equilibrium.

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Study Citation:	Xu, L., Shi, Y., Wang, T., Dong, Z., Su, W., Cai, Y. (2012). Methyl siloxanes in environmental matrices around a siloxane production facility, and their distribution and elimination in plasma of exposed population. Environmental Science & Technology 46(21):11718-11726.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2558926

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable for this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable for this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Air-soil partitioning was not explicitly reported by the study authors nor was an end-point of interest. The air samples were collected to estimate Limited study details reported reduce the usefulness of this data.
	Metric 12:	Test Substance Purity	Medium	Sampling frequency was not reported.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Variability and uncertainty were not explicitly addressed.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	Not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The analytical method, limit of quantification, and percent recovery were reported. Data were only reported graphically and were estimated by the reviewer.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistics were reported.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results were reasonable based on the method but the study design and reported details are likely not robust enough to determine partitioning behavior.
	Metric 18:	QSAR Models	N/A	Not applicable.

Overall Quality Determination — Medium

Study Citation:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836341

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Pentane; NR; NR; NR
Radiolabel, Source, State, Purity	13-C D4 obtained from Moravek Biochemicals (Brea, CA) and Cambridge Isotope Laboratories (Andover, MA); Sigma-Aldrich (St. Louis, MO); NR; >98%
Test Method Details, Test Condition Details, and Test Consistency Details	Soil was collected from fields near an oil-wastewater treatment plant (Shengli Oilfield, Dongying District, China) from 2008-2017.; 2g of soil was spiked with 1mL of 200µgL solution and left in capped and uncapped vials to compare losses over time. Soil was sterilized to prevent biodegradation. Humidity of soil: 16.0-16.5%. Tests were done at TOC (mg/g) of 10, 20, 50, 100, and 200.; The pH of the soil was 7.4.
System Type Design	Triplicate samples were used for each incubation length. Capped vials with sterilized soil were monitored to determine hydrolysis rates.
Sampling Frequency and Sampling Details	Samples were collected on days 0, 0.5, 2, 4, 8, and 20.; Not Reported
Test Temperature	25°C
Results Details	D4 volatilization half-life (days) from 10, 20, 50, 100, and 200 mg/g TOC experiments: 2.31, 3.70, 5.09, 7.04, and 10.9.
Analytical Method and Analytical Details	GC-MS with selective ion monitoring.; Agilent 7890A GC and 5975C MS
Transformation Products, Statistics, and Kinetics	Not reported; Rates were calculated by subtracting slope of semilog plots in capped samples from the values in the uncapped (open) samples.; Not Reported
Reference Substance and Reference Substance Results	Not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified using common nomenclature.
	Metric 2:	Test Substance Purity	High	The test substance purity was reported and appropriate.
Domain 2: Test Design				
	Metric 3:	Study Controls	High	Appropriate controls were used.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported and appropriate.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	The testing conditions were reported an 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				

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Study Citation:	Xu, L., Xu, S., Zhang, Q., Zhang, S., Tian, Y., Zhao, Z., Cai, Y. (2019). Chlorinated-methylsiloxanes in Shengli oilfield: Their generation in oil-production wastewater treatment plant and presence in the surrounding soils. Environmental Science & Technology 53(7):3558–3567.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836341

			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 the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The sampling methods were reported and appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Uncertainty was not reported in the results; however, the omission is unlikely to have a substantial impact on the study results.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Sufficient evidence was provided to show that volatilization was the removal mechanism causing the decrease in substance concentration.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	Some of the details of the kinetic calculations were not reported; however, the omissions are unlikely to have a substantial impact on the study results.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	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:	Xu, L., Xu, S., Zhi, L., He, X., Zhang, C., Cai, Y. (2017). Methylsiloxanes release from one landfill through yearly cycle and their removal mechanisms (especially hydroxylation) in leachates. Environmental Science & Technology 51(21):12337-12346.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836342

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Field study; WWTP removal efficiency; Field study; WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	13C-labeled D4 (Cambridge Isotope Laboratories, Andover, MA); Samples collected from a municipal WWTP; NR; NR Notes: D4 standards (>98% pure) were purchased from Sigma-Aldrich (St. Louis, MO), 13C-labaled D4 purchased from Cambridge Isotope Laboratories (Andover, MA)
Test Method Details, Test Condition Details, and Test Consistency Details	Influent and effluent samples were collected from a WWTP in China. 13C-D4 was used as an internal standard.; Processes ~ 220,000 kg/d of solid waste. Catchment area covers 171 km^2 with a population of 300,000.The Leachate from the drainage layer was pumped to a storage pond (square=3000 m^2, average leachate depth =0.4 m); average hydraulic retention time ~18 days.; 36 samples collected
System Type Design	Anaerobic-anoxic-oxic processes in a municipal WWTP
Sampling Frequency and Sampling Details	January - December 2016; 3 events per month; 24 hour composite samples collected over 1 year
Test Temperature	NR
Results Details	Removal efficiency: 96.3-98.1% (mean: 97.5%); main removal mechanisms were volatilization and sorption to sludge
Analytical Method and Analytical Details	GC-MS in SIM, MS operated in EI mode; LOD = 1.7-2.8 ng/L; Recovery = 88-94%; Liquid-liquid extraction with n-hexane followed by n-hexane/ethyl acetate, concentration by evaporation under nitrogen, and passed through anhydrous sodium sulfate cartridge.
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	Field blank; procedural blank; 1.2-3.9 ng/L; 0.6-2.4 ng/L

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 of the WWTP samples was reported generally.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for field studies.
	Metric 4:	Test Substance Stability	Medium	Sample storage was not reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field method was suitable for the test substance.
	Metric 6:	Testing Conditions	Medium	Not all test conditions were reported.
	Metric 7:	Testing Consistency	High	The testing conditions were consistent.
	Metric 8:	System Type and Design	High	The system design was appropriate.

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Study Citation:	Xu, L., Xu, S., Zhi, L., He, X., Zhang, C., Cai, Y. (2017). Methylsiloxanes release from one landfill through yearly cycle and their removal mechanisms (especially hydroxylation) in leachates. Environmental Science & Technology 51(21):12337-12346.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836342

		EVALUATION	
Domain	Metric	Rating	Comments
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	High	The outcome of interest was reported.
Metric 12:	Test Substance Purity	High	The sampling method was appropriate.
Domain 6: Confounding/Variable Control			
Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis			
Metric 15:	Data Reporting	High	The analytical method was suitable.
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 — High

Study Citation:	Xu, L., Xu, S., Zhi, L., He, X., Zhang, C., Cai, Y. (2017). Methylsiloxanes release from one landfill through yearly cycle and their removal mechanisms (especially hydroxylation) in leachates. Environmental Science & Technology 51(21):12337-12346.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836342

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Field study; volatilization from leachate in storage pond; Field study; volatilization from leachate in storage pond
Solvent, Reactivity, Storage, Stability	NR; NR; stored in sealed glass tubes without headspace at 4°C; NR
Radiolabel, Source, State, Purity	13C-labeled D4 (Cambridge Isotope Laboratories, Andover, MA); Samples collected from leachate storage pond in China; NR; NR Notes: D4 standards (>98% pure) were purchased from Sigma-Aldrich (St. Louis, MO), 13C-labaled D4 purchased from Cambridge Isotope Laboratories (Andover, MA)
Test Method Details, Test Condition Details, and Test Consistency Details	Effluent leachate samples from the storage ponds were collected. 13C-D4 was used as internal standard.; D4 was detected in all influent samples of storage ponds at concentrations of 0.338 to 7.18 ug/L. D4 was detected in landfill gas samples at concentrations of 0.753 to 2.33 mg/m3.; 36 samples collected
System Type Design	municipal landfill in China
Sampling Frequency and Sampling Details	January to December 2016, three events per month.; 24 hour composite influent leachate of the storage pond and coupled effluent leachate were collected for 1 year.
Test Temperature	NR
Results Details	Removal efficiency: 81.1-100% range over year period (details in SI); mean volatilization rate=2.93E-2/day (as temp increased volatilization rates increased); mean hydrolysis rate=3.34E-2/d (as pH increased hydrolysis rates increased); phototransformation was negligible.
Analytical Method and Analytical Details	GC-MS in SIM, MS operated in EI mode; LOD = 1.7-2.8 ng/L; Recovery = 88-94%; Liquid-liquid extraction with n-hexane followed by n-hexane/ethyl acetate, concentration by evaporation under nitrogen, and passed through anhydrous sodium sulfate cartridge. (Details in SI)
Transformation Products, Statistics, and Kinetics	NR; NR; NR
Reference Substance and Reference Substance Results	Field blank; procedural blank; 1.2-3.9 ng/L; 0.6-2.4 ng/L

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 of the WWTP samples was reported generally.
Domain 2: Test Design			
Metric 3:	Study Controls	N/A	Not applicable for field studies.
Metric 4:	Test Substance Stability	Medium	Sample storage was not reported.
Domain 3: Test Conditions			
Metric 5:	Test Method Suitability	High	The field method was suitable for the test substance.
Metric 6:	Testing Conditions	Medium	Not all test conditions were reported.
Metric 7:	Testing Consistency	High	The testing conditions were consistent.
Metric 8:	System Type and Design	High	The system design was appropriate.

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Study Citation:	Xu, L., Xu, S., Zhi, L., He, X., Zhang, C., Cai, Y. (2017). Methylsiloxanes release from one landfill through yearly cycle and their removal mechanisms (especially hydroxylation) in leachates. Environmental Science & Technology 51(21):12337-12346.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836342

		EVALUATION		
Domain		Metric	Rating	Comments
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	High	The outcome of interest was reported.
	Metric 12:	Test Substance Purity	High	The sampling method was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Confounding variables were not reported.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	This metric does not apply to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	The analytical method was suitable.
	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 — High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 11.903 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	-5.1 to -2.5°C (from table)
Results Details	log Koa = 5.08-5.18 (average 5.12); concentration in air = 79.5-99.1 pptv (average 89.9 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 2 of 10 values were excluded in log Koa value calculation (1 below the lower limit and 1 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	Metric 8:	System Type and Design	High	Equilibrium was established.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to the study type.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 29.756 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	-5.5 to -2°C (from table)
Results Details	log Koa = 5.01-5.07 (average 5.04); concentration in air = 255.1-291.1 pptv (average 271.9 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 2 of 10 values were excluded in log Koa value calculation (1 below the lower limit and 1 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 2.803 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	5.1-5.8°C (from table)
Results Details	log Koa = 4.74-4.79 (average 4.77); concentration in air = 45.2-51.1 pptv (average 48.1 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 4 of 10 values were excluded in log Koa value calculation (1 below the lower limit and 3 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 8.810 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	5.1-5.5°C (from table)
Results Details	log Koa = 4.77-4.87 (average 4.81); concentration in air = 118.9-156.1 pptv (average 137.3 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 2 of 10 values were excluded in log Koa value calculation (2 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 0.965 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	23.6-24.4°C (from table)
Results Details	log Koa = 4.16-4.35 (average 4.21); concentration in air = 42.5-66.4 pptv (average 59.1 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 1 of 10 values were excluded in log Koa value calculation (1 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 8.688 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	23.7-24.5°C (from table)
Results Details	log Koa = 4.18-4.27 (average 4.22); concentration in air = 464.4-568.7 pptv (average 523.5 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 1 of 10 values were excluded in log Koa value calculation (1 with a ratio outside the acceptable range); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 0.296 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	38.5-41.6°C (from table)
Results Details	log Koa = 3.83-4.02 (average 3.93); concentration in air = 28.5-44.0 pptv (average 35.5 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 1 of 10 values were excluded in log Koa value calculation (1 above the upper limit); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. (2006). 1-octanol/air partitioning coefficients of octamethylcyclotetrasiloxane (D4), decamethylcyclopentasiloxane (D5), and dodecamethylcyclohexasiloxane (D6) at different temperatures.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; 395.9 mCi/g; Freezer; stable
Radiolabel, Source, State, Purity	14C-labeled; Dow Corning Corp, Auburn, MI; Colorless liquid; 99.2% Notes: D4: Reference #20444-49
Test Method Details, Test Condition Details, and Test Consistency Details	Determination of log Koa of a mixture of D4, D5, D6; Test syringe solution concentration was measured as 2.865 ppm of D4; Testing conditions were consistent across samples.
System Type Design	gas tight syringe filled with test substance, 1-octanol and laboratory air.
Sampling Frequency and Sampling Details	not reported; At least 10 samples were collected; air volume sampled: 85 cc each
Test Temperature	38.1-41.4°C (from table)
Results Details	log Koa = 3.86-3.97 (average 3.90); concentration in air = 310.1-392.2 pptv (average 357.9 pptv)
Analytical Method and Analytical Details	Radio-HPLC; mobile phase: water/acetonitrile/methanol gradient
Transformation Products, Statistics, and Kinetics	not reported; background and counting efficiency correction and outlier identification methods described.; 2 of 10 values were excluded in log Koa value calculation (1 below the lower limit and 1 above the upper limit); Calculation of log Koa was done using DPM (disintegration per minute) in air and octanol at initial and final testing.
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance stability, homogeneity, preparation, and storage conditions were reported and were appropriate for the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	Testing conditions were monitored, reported, and appropriate for the method.
	Metric 7:	Testing Consistency	High	Test conditions were consistent.
	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.

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OECD Harmonized Template:	Miscellaneous
HERO ID:	6987840

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to the study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcome of interest, and used widely accepted methods/approaches for the chemical and media being analyzed.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to 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 within expected range.
	Metric 18:	QSAR Models	N/A	The metric is not applicable to the study type.

Overall Quality Determination High

Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836181

EXTRACTION

Parameter	**Data**
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled; Wizard Laboratories (Davis, CA); NR; >99%
Test Method Details, Test Condition Details, and Test Consistency Details	Open tubes of soil were prepared in desiccators to maintain relative humidity. Activated carbon tube was used to adsorb evaporated D4. Soils were extracted and analyzed for remaining D4.; 32, 50, 100% relative humidity; Temperature and relative humidity were consistent through out.
System Type Design	not applicable
Sampling Frequency and Sampling Details	1 hr to 14 days; Soil extracted 3 times with hexane, twice with 0.01M calcium chloride solution and once with 0.1 M hydrochloric acid solution. Final soil after extractions was combusted to measure nonextractable organosilicon fraction.
Test Temperature	22±2°C
Results Details	volatilization: negligible at 32% RH; up to 40% at 50% RH; >80% at 100% RH
Analytical Method and Analytical Details	RP-HPLC with flow scintillation analyzer; Analytical details referenced.
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 by name.
	Metric 2:	Test Substance Purity	High	The source and purity of the test substance were reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Medium	The test substance stability, homogeneity, preparation or storage conditions were not reported; however, these factors were not likely to influence the test substance or were not likely to have a substantial impact on study results.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable for the test substance.
	Metric 6:	Testing Conditions	High	There were omissions in testing conditions, however, sufficient data were reported to determine that the omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	Medium	Some test conditions across samples were not reported, but these discrepancies were not likely to have a substantial impact on study results.

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Study Citation:	Xu, S. H., Chandra, G. (1999). Fate of cyclic methylsiloxanes in soils. 2. Rates of degradation and volatilization. Environmental Science & Technology 33(22):4034-4039.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6836181

		EVALUATION		
Domain		Metric	Rating	Comments
	Metric 8:	System Type and Design	Medium	Equilibrium was not reported but this was not likely to have a substantial impact on study results
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 outcomes of interest.
	Metric 12:	Test Substance Purity	High	The study reported the use of sampling methods that address the outcomes of interest, and used widely accepted methods/approaches for the chemical and media being analyzed and no notable uncertainties or limitations were expected to influence results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Sources of variability and uncertainty in the measurements, and statistical techniques were considered and accounted for in data evaluation and all reported variability or uncertainty was not likely to influence the outcome assessment.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Medium	kinetic calculations were not clearly described.
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:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	air−water partition coefficient (KAW) were reported based on calculation using measured solubility and saturated vapor pressure; Literature values used to calculate standard Kaw: log P = 2.06 Pa; water solubility = 190 µmol/m3; not applicable
System Type Design	not applicable
Sampling Frequency and Sampling Details	not applicable; not applicable
Test Temperature	23°C; 25°C
Results Details	standard log Kaw = 2.39 (at 23°C); log Kaw = 2.48 (at 25°C)
Analytical Method and Analytical Details	not applicable; not applicable
Transformation Products, Statistics, and Kinetics	not applicable; not applicable; not applicable
Reference Substance and Reference Substance Results	not applicable; not 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.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The metric is not applicable to this study.
	Metric 4:	Test Substance Stability	N/A	The metric is not applicable to this study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	N/A	The metric is not applicable to this study.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment methodology addressed or reported the intended outcome of interest.
	Metric 12:	Test Substance Purity	N/A	The metric is not applicable to this study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not applicable to this study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Calculations were clearly described.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination High

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and water phases using the headspace equilibrium method and the vapor entry loop equilibrium method; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	28°C
Results Details	Headspace method: saturation log Kaw,s = 2.61 (at water solubility limit) and log Kaw,i = 1.36 (at lower concentrations than the limit); vapor entry loop method: log Kaw,i = 1.38 (at lower concentrations than the limit)
Analytical Method and Analytical Details	headspace equilibrium method and the vapor entry loop equilibrium method; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 7303416 - Kochetkov, A.; Smith, J. S.; Ravikrishna, R.; Valsaraj, K. T.;Thibodeaux, L. J. Air-water partition constants for volatile methyl siloxanes. Environ. Toxicol. Chem. 2001, 20 (10), 2184−2188. (not in distiller at time of extraction)

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and water phases using direct equilibrium method and direct equilibrium with humic acid addition method; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	20°C
Results Details	direct: saturation log Kaw,s = 2.26 (at water solubility limit) and log Kaw,i = 0.53 (at lower concentrations than the limit); with humic acid addition: log Kaw,i = 1.53 (at lower concentrations than the limit)
Analytical Method and Analytical Details	direct equilibrium method and direct equilibrium with humic acid addition method; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2803124 - Hamelink, J. L.; Simon, P. B.; Silberhorn, E. M. Henry's lawconstant, volatilization rate and aquatic half-life of octamethylcyclotetrasiloxanes.Environ. Sci. Technol. 1996, 30, 1946−1952.

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and water phases using 3-phase equilibrium/HPLC; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	25°C
Results Details	saturation log Kaw,s = 2.48 (at water solubility limit) and log Kaw,i = 2.74 (at lower concentrations than the limit)
Analytical Method and Analytical Details	HPLC; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2535012 - Xu, S.; Kropscott, B. Evaluation of the three-phase equilibrium method for measuring temperature dependence of internally consistent partition coefficients (KOW, KOA and KAW) for volatile methylsiloxanes and trimethylsilanol. Environ. Toxicol. Chem. 2014, accepted.

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and water phases using 3-phase equilibrium/HPLC; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	22°C
Results Details	saturation log Kaw,s = 2.35 (at water solubility limit) and log Kaw,i = 2.69 (at lower concentrations than the limit)
Analytical Method and Analytical Details	HPLC; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2188633 - Xu, S.; Kropscott, B. Method for simultaneous determination of partition coefficients for cyclic volatile methylsiloxanes and dimethylsilanediol. Anal. Chem. 2012, 84, 1948−1955.

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	14C-labeled test material; NR; NR; NR
Test Method Details, Test Condition Details, and Test Consistency Details	direct measurements of test substance in air and octanol phases using 3-phase equilibrium/HPLC; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	25°C
Results Details	log Koa = 4.28
Analytical Method and Analytical Details	HPLC; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2535012 - Xu, S.; Kropscott, B. Evaluation of the three-phase equilibrium method for measuring temperature dependence of internally consistent partition coefficients (KOW, KOA and KAW) for volatile methylsiloxanes and trimethylsilanol. Environ. Toxicol. Chem. 2014, accepted.

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and octanol phases using 3-phase equilibrium/HPLC; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	22°C
Results Details	log Koa = 4.29
Analytical Method and Analytical Details	HPLC; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2188633 - Xu, S.; Kropscott, B. Method for simultaneous determination of partition coefficients for cyclic volatile methylsiloxanes and dimethylsilanediol. Anal. Chem. 2012, 84, 1948−1955.

Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; octamethylcyclotetrasiloxane
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	direct measurements of test substance in air and octanol phases using syringe headspace analysis/HPLC; not reported; not applicable
System Type Design	not reported
Sampling Frequency and Sampling Details	not reported; not reported
Test Temperature	25°C
Results Details	log Koa = 4.31
Analytical Method and Analytical Details	HPLC; not reported
Transformation Products, Statistics, and Kinetics	not reported; not reported; not reported
Reference Substance and Reference Substance Results	not reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 2: Test Design				
	Metric 3:	Study Controls	Low	Detail regarding this metric were not reported in this review.
	Metric 4:	Test Substance Stability	Low	Detail regarding this metric were not reported in this review.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The test method was suitable.
	Metric 6:	Testing Conditions	Low	Detail regarding this metric were not reported in this review.
	Metric 7:	Testing Consistency	Low	Detail regarding this metric were not reported in this review.
	Metric 8:	System Type and Design	High	Equilibrium was likely established.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study.
	Metric 10:	Sampling Methods	N/A	The metric is not applicable to this study.

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Study Citation:	Xu, S., Kozerski, G., Mackay, D. (2014). Critical review and interpretation of environmental data for volatile methylsiloxanes: partition properties. Environmental Science & Technology 48(20):11748-11759.
OECD Harmonized Template:	Miscellaneous
HERO ID:	2535051

			EVALUATION	
Domain		Metric	Rating	Comments
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	Low	Detail regarding this metric were not reported in this review.
	Metric 12:	Test Substance Purity	Low	Detail regarding this metric were not reported in this review.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Detail regarding this metric were not reported in this review.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Low	Detail regarding this metric were not reported in this review.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Detail regarding this metric were not reported in this review.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination Low

* Related References: Reference cited: HERO ID 2639742 - Xu, S.; Kropscott, B. Octanol-air partition coefficients of volatile methylsiloxanes and their temperature dependence. J. Chem. Eng. Data 2013, 58, 136−142.

Study Citation:	Xu, S., Warner, N., Bohlin-Nizzetto, P., Durham, J., Mcnett, D. (2019). Long-range transport potential and atmospheric persistence of cyclic volatile methylsiloxanes based on global measurements. Chemosphere 228:460-468.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833870

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Calculation; atmospheric half-life; Calculation; atmospheric half-life
Solvent, Reactivity, Storage, Stability	NA; NA; NA; NA
Radiolabel, Source, State, Purity	NA; NA; NA; NA Notes: Calculation based on published data.
Test Method Details, Test Condition Details, and Test Consistency Details	Atmospheric half-life calculated based on atmospheric D4 concentrations (n = 700) collected from peer-reviewed journals and government reports from 2004 and 2016 from sites in Europe and North America at and above 35 degrees N latitude. Characteristic travel distances were determined based on spatial south-to-north patterns and decrease.; Removal in atmosphere follows roughly first order kinetics. [D4] = [D4]^o(-k_app(11.5/v)LA)Where [D4]^o = hypothetical concentration projected form the source to zero degrees North.L_app = apparent pseudo-first-order rate constantv = average wind velocity in a south-to-north direction (11.5 km/degrees N is the average displacement on earth surface) LA = sample latitudeHalf-life = 0.683 * empirical characteristic travel distance / v; NA
System Type Design	NA
Sampling Frequency and Sampling Details	NA; NA
Test Temperature	NA
Results Details	Exclusion of major cities in the dataset decreased the slopes of the regressions of “log concentration-vs-latitude” to -0.037 +/- 0.006 during the spring/summer months and to -0.030 +/- 0.005 for yearly trends. Exclusion of all cities and using only background and remote sites resulted in a slope of -0.028 +/- 0.004. D4 empirical characteristic travel distance (eCTD) ranged from 930 to 1535 km (average 1158 km); after exclusion of 4 urban locations, eCTDs ranged from 1240 to 2290 km (average: 1610 km); After exclusion of all city locations, eCTDs ranged from 1380 to 2300 (average: 1730). Half-lives determined by eCTD: No site exclusion min-max: 1.9-3.1 days (average: 2.3 days) 4 urban site exclusion min-max: 2.5-4.6 days (average: 3.2 days) All city location exclusion min-max: 2.8-4.6 days (average: 3.5 days)
Analytical Method and Analytical Details	Not Reported; Not Reported
Transformation Products, Statistics, and Kinetics	NA; Atmospheric concentrations decrease with increasing northern latitude. First order trends observed, r^2 = 0.909 (p = 0.0002 for n = 8).; 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	N/A	Not applicable to calculations.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable to calculations.
	Metric 4:	Test Substance Stability	N/A	Not applicable to calculations.
Domain 3: Test Conditions				

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Study Citation:	Xu, S., Warner, N., Bohlin-Nizzetto, P., Durham, J., Mcnett, D. (2019). Long-range transport potential and atmospheric persistence of cyclic volatile methylsiloxanes based on global measurements. Chemosphere 228:460-468.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833870

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 5:	Test Method Suitability	N/A	Not applicable to calculations.
	Metric 6:	Testing Conditions	N/A	Not applicable to calculations.
	Metric 7:	Testing Consistency	N/A	Not applicable to calculations.
	Metric 8:	System Type and Design	N/A	Not applicable to calculations.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The calculations applied were well descried and appropriate for determining atmospheric half-lives.
	Metric 12:	Test Substance Purity	N/A	Not applicable to calculations.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Factors potentially impacting the dataset (urban centers) were explored and addressed.
	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	N/A	Not applicable to calculations.
	Metric 16:	Statistical Methods and Kinetic Calculations	High	Statistical and kinetic calculations were well described and applied appropriately.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The results seem reasonable, but are based on secondary data. Data quality for the secondary data could not be assessed.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination Medium

Study Citation:	Yao, Q., Lin, X., Yaqi, C., Liqin, Z., Chunhui, Z. (2019). Occurrence and fate of cyclic and linear methylsiloxanes in a wastewater treatment plant in Shandong Province, China. Huanjing Huaxue / Environmental Chemistry 38(2):422-432.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002476

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	No; Experimental; Experimental
Solvent, Reactivity, Storage, Stability	Not Reported; Not Reported; Not Reported; Not Reported
Radiolabel, Source, State, Purity	Not Reported; Shandong province wastewater and sludge; Not Reported; Not Reported Notes: reference material from Sigma-Aldrich St. Louis MO, USA
Test Method Details, Test Condition Details, and Test Consistency Details	Limited details reported in English.; Limited details reported in English.; Not Reported
System Type Design	Limited details reported in English.
Sampling Frequency and Sampling Details	Not Reported; Samples collected at different points in the WWTP process including in the influent, after the primary sedimentation tank, anaerobic tank, anoxic tank, aerobic tank, anoxic tank, aerobic tank, secondary sedimentation tank, sand filter, ozone tank, ultraviolet tank, effluent and in the return sludge in the summer, spring, fall and winter.
Test Temperature	Not Reported
Results Details	log kd (solid-liquid; sludge-wastewater) = 3.68-3.98 based on data from different points in the WWTP
Analytical Method and Analytical Details	Gas Chromatograph/Mass Selective Detector (GC/MSD) electron ionization; Limit of quantification for D4-D6 1.13-2.07 ng/g or 5.10-7.20 ng/L
Transformation Products, Statistics, and Kinetics	Not Reported; Not Reported; Not Reported
Reference Substance and Reference Substance Results	Not Reported; Not Reported

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified definitively.
	Metric 2:	Test Substance Purity	High	The source or purity of the test substance was reported or the test substance identity and purity were verified by analytical means.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	Low	The test substance stability, homogeneity, preparation, and storage conditions were not reported in English; 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 few details reported in English; these deviations or omissions were not likely to have a substantial impact on study results.

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Study Citation:	Yao, Q., Lin, X., Yaqi, C., Liqin, Z., Chunhui, Z. (2019). Occurrence and fate of cyclic and linear methylsiloxanes in a wastewater treatment plant in Shandong Province, China. Huanjing Huaxue / Environmental Chemistry 38(2):422-432.
OECD Harmonized Template:	Miscellaneous
HERO ID:	7002476

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 6:	Testing Conditions	Medium	There were omissions in testing conditions details in English; however, omissions were not likely to have a substantial impact on study results.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to this study type.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	The metric is not applicable to this study type.
	Metric 10:	Sampling Methods	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	Low	Details regarding sampling methods of the outcome were not fully reported in English, and the omissions were likely to have a substantial impact on study results.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Low	Sources of variability and uncertainty in the measurements and statistical techniques were not considered or accounted for in data evaluation resulting in some uncertainty.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to this study type.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	The target chemical and transformation products concentrations, extraction efficiency, percent recovery, or mass balance were not reported; however, these omissions were not likely to have a substantial impact on study results.
	Metric 16:	Statistical Methods and Kinetic Calculations	Low	Statistical analysis were not conducted or were not described clearly in English.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — Low

Study Citation:	Yongchao, L., Jiaomin, L., Cheng, Q., Fuqiang, G., Hong, G., Zhongyi, L., Jingxian, W., Qingbo, L. (2019). [Seasonal variation of cVMS concentrations in the influents and effluents of wastewater treatment plants]. Huanjing Huaxue / Environmental Chemistry 38(5):1171-1179.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6998717

EXTRACTION

Parameter	**Data**
CASRN and Test Material	Not Reported; D4
Confidentiality, Type, Guideline	none; experimental: monitoring study; experimental: monitoring study
Solvent, Reactivity, Storage, Stability	NR; NR; NR; NR
Radiolabel, Source, State, Purity	NR; Sigma Aldrich, USA; NR; >97%
Test Method Details, Test Condition Details, and Test Consistency Details	Liquid-liquid microextraction of influent and effluent streams of 8 WWTPs in Dalian, China. Samples were collected over a 1 year period to evaluate seasonal variation.; not reported in English; not reported in English
System Type Design	WWTP processes included biological aerated filter, cyclic activated sludge technology, and constant water level sequencing batch reactor.
Sampling Frequency and Sampling Details	not reported in English; not reported in English
Test Temperature	not reported in English
Results Details	Average concentrations: influent = 471.9 ng/L, effluent = 249.3 ng/L; concentrations of D4 peaked in Winter months and were at a minimum during Autumn months. Removal rates (% removal efficiency) during spring = 44.4%, summer = 22.3%, autumn = 86.5%, and winter = 48.6%. Removal rates using biological aerated filter treatment = 49.4%, cyclic activated sludge technology treatment = 42.1%, and constant water level sequencing batch reactor treatment = 57.7%.
Analytical Method and Analytical Details	GC-MS; Recovery 87.85±2.90%; LOD se to 3x the signal to noise ratio (7.96 ng/L); LOQ set to 10x the signal to noise ratio (26.53 ng/L)
Transformation Products, Statistics, and Kinetics	not reported; RSD (20 µg/L) = 4.43%, RSD (5 µg/L) = 12.88%; not reported
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The 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	Details regarding this metric were not reported in English; however, may be included in the study.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	Medium	Details regarding this metric were not reported in English; however, may be included in the study.
	Metric 6:	Testing Conditions	Medium	Details regarding this metric were not reported in English; however, may be included in the study.

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Study Citation:	Yongchao, L., Jiaomin, L., Cheng, Q., Fuqiang, G., Hong, G., Zhongyi, L., Jingxian, W., Qingbo, L. (2019). [Seasonal variation of cVMS concentrations in the influents and effluents of wastewater treatment plants]. Huanjing Huaxue / Environmental Chemistry 38(5):1171-1179.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6998717

			EVALUATION	
Domain		Metric	Rating	Comments
	Metric 7:	Testing Consistency	Medium	Details regarding this metric were not reported in English; however, may be included in the study.
	Metric 8:	System Type and Design	N/A	The metric is not applicable to the study.
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	High	Details regarding this metric were not fully reported in English; however, some results were reported and additional information may be included in the study.
	Metric 12:	Test Substance Purity	Medium	Details regarding this metric were not reported in English; however, may be included in the study.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	Medium	Details regarding this metric were not reported in English; however, may be included in the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not applicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	Medium	Details regarding this metric were not reported in English; however, may be included in the study.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The study results were reasonable; however, limited details were reported in English.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

Study Citation:	Zhang, Y. (2014). Analysis of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane in wastewater, sludge and river samples by headspace gas chromatography/mass spectrometry.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834194

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Field study; WWTP removal efficiency; Field study; WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NA; NR; Stored in the dark at 4 deg C in amber glass bottles; Average 31% increase in peak areas from day 1 to 2 and 25% increase from day 2 to 3 in water standards; 15% decrease in average peak areas from day 1 to 2 and 20% decrease from day 2 to 3 were observed in sludge standards.
Radiolabel, Source, State, Purity	NA; Samples collected from City of Loveland Wastewater Treatment Plant and Loveland and Drake Wastewater Reclamation Facility in Fort Collins, Colorado; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Wastewater (influent and effluent) and activated sludge samples were collected from Loveland and Drake Wastewater Reclamation Facility, in Fort Collins, Colorado, from November 2013 to May 2014.; NR; Not Reported
System Type Design	Both plants were activated sludge process WWTPs
Sampling Frequency and Sampling Details	January 16, February 5, March 6, April 15, and May 13, 2014; Samples collected at influent, primary sludge, primary effluent, return activated sludge (RAS), centrate, digester sludge, and effluent.
Test Temperature	NR
Results Details	Drake WWRF removal efficiency: 53% Influent (mean mass rate): 159.9 g/d Primary sludge (mean mass rate): 4.4 g/d Thicken waste activated sludge (TWAS, mean mass rate): 16.1 g/d Effluent (mean mass rate): 74.9 g/d Drake WWRF Sludge ranges: 0.3-1 ug/g dw (primary sludge), 0.4-1.6 ug/g dw (TWAS), 0.6-1.8 ug/g dw (RAS), 0.2-0.7 ug/g dw (digester sludge) Accumulation in the sludge was observed.
Analytical Method and Analytical Details	HS-GC/MS; LOD = 0.22 ng/mL; Recovery = 94% (wastewater), 125% (sludge)Samples were mixed with reverse osmosis water and acetone and vortexed for 3 minutes each prior to analysis.
Transformation Products, Statistics, and Kinetics	NR; NR; NA
Reference Substance and Reference Substance Results	NA; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for field studies.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for field studies.
	Metric 4:	Test Substance Stability	Medium	Some instability was observed in the test substance standards after 3 days.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate.
	Metric 6:	Testing Conditions	Medium	Limited WWTP operational conditions and stages were reported.
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently.

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Study Citation:	Zhang, Y. (2014). Analysis of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane in wastewater, sludge and river samples by headspace gas chromatography/mass spectrometry.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834194

		EVALUATION		
Domain	Metric		Rating	Comments
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were not reported. Frequency was appropriate for determining seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in measurements and seasonal variation were addressed.
	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	High	The analytical method was appropriate, sample extraction efficiency and limits of detection were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination High

Study Citation:	Zhang, Y. (2014). Analysis of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane in wastewater, sludge and river samples by headspace gas chromatography/mass spectrometry.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834194

EXTRACTION

Parameter	Data
CASRN and Test Material	556-67-2; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	None; Field study; WWTP removal efficiency; Field study; WWTP removal efficiency
Solvent, Reactivity, Storage, Stability	NA; NR; Stored in the dark at 4 deg C in amber glass bottles; Average 31% increase in peak areas from day 1 to 2 and 25% increase from day 2 to 3 in water standards; 15% decrease in average peak areas from day 1 to 2 and 20% decrease from day 2 to 3 were observed in sludge standards.
Radiolabel, Source, State, Purity	NA; Samples collected from City of Loveland Wastewater Treatment Plant and Loveland and Drake Wastewater Reclamation Facility in Fort Collins, Colorado; NA; NA
Test Method Details, Test Condition Details, and Test Consistency Details	Wastewater (influent and effluent) and activated sludge samples were collected from City of Loveland Wastewater Treatment Plant (WWTP), in Fort Collins, Colorado, from November 2013 to May 2014.; NR; NR
System Type Design	Both plants were activated sludge process WWTPs
Sampling Frequency and Sampling Details	January 16, February 5, March 6, April 15, and May 13, 2014; Samples collected at influent, primary sludge, primary effluent, return activated sludge (RAS), centrate, digester sludge, and effluent.
Test Temperature	NR
Results Details	Loveland WWTP removal efficiency: 4% Influent (mean mass rate): 47.0 g/d Primary sludge (mean mass rate): 26.6 g/d Thicken waste activated sludge (TWAS, mean mass rate): 3.4 g/d Effluent (mean mass rate): 45.0 g/d Loveland WWTP Sludge ranges: 0.2-0.8 ug/g dw (digester sludge), 0.3-1.7 ug/g dw (primary sludge), 0.4-1.6 ug/g dw (RAS), Accumulation in the sludge was observed.
Analytical Method and Analytical Details	HS-GC/MS; LOD = 0.22 ng/mL; Recovery = 94% (wastewater), 125% (sludge)Samples were mixed with reverse osmosis water and acetone and vortexed for 3 minutes each prior to analysis.
Transformation Products, Statistics, and Kinetics	NR; NR; NA
Reference Substance and Reference Substance Results	NA; NA

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified by name.
	Metric 2:	Test Substance Purity	N/A	Not applicable for field studies.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	Not applicable for field studies.
	Metric 4:	Test Substance Stability	Medium	Some instability was observed in the test substance standards after 3 days.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	High	The field study method was appropriate.
	Metric 6:	Testing Conditions	Medium	Limited WWTP operational conditions and stages were reported.
	Metric 7:	Testing Consistency	High	Samples were collected and analyzed consistently.
	Metric 8:	System Type and Design	N/A	Not applicable to this study type.

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Study Citation:	Zhang, Y. (2014). Analysis of octamethylcyclotetrasiloxane and decamethylcyclopentasiloxane in wastewater, sludge and river samples by headspace gas chromatography/mass spectrometry.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6834194

		EVALUATION		
Domain		Metric	Rating	Comments
Domain 4: Test Organisms				
	Metric 9:	Outcome Assessment Methodology	N/A	Not applicable to this study type.
	Metric 10:	Sampling Methods	N/A	Not applicable to this study type.
Domain 5: Outcome Assessment				
	Metric 11:	Test Substance Identity	High	The outcome assessment was appropriate for determining removal efficiency.
	Metric 12:	Test Substance Purity	High	Sampling methods were not reported. Frequency was appropriate for determining seasonal variation.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	High	Uncertainty in measurements and seasonal variation were addressed.
	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	High	The analytical method was appropriate, sample extraction efficiency and limits of detection were reported. Raw data was reported.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	Not conducted.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	High	The results were reasonable based on the method.
	Metric 18:	QSAR Models	N/A	Not applicable for this study type.

Overall Quality Determination High

Study Citation:	Zhang, Y., Zeng, G., Shen, M., Tian, Y. (2018). Cyclic volatile methylsiloxanes in sediment, soil, and surface water from Dongting Lake, China. Journal of Soils and Sediments 18(5):2063-2071.
OECD Harmonized Template:	Miscellaneous
HERO ID:	6833820

EXTRACTION

Parameter	Data
CASRN and Test Material	Not Reported; Octamethylcyclotetrasiloxane
Confidentiality, Type, Guideline	none; experimental; experimental
Solvent, Reactivity, Storage, Stability	stock solutions prepared in n-hexane; NR; stock solutions stored in amber glass bottles at -4°C; NR
Radiolabel, Source, State, Purity	NR; Tokyo Chemical Industry (Wellesley Hills, MA, USA); NR; >97%
Test Method Details, Test Condition Details, and Test Consistency Details	Soil samples collected from East Dongting Lake; the area is has intensive agricultural activity and industrial sites.; Not Reported; Not Reported
System Type Design	field study
Sampling Frequency and Sampling Details	samples collected in October 2016; Mean TOC in soil = 115.5±31.98 ng/g
Test Temperature	not specified; ambient
Results Details	Concentration in soil (14/15): mean = 22.15±27.22 ng/g (<LOD-110.08)
Analytical Method and Analytical Details	GC-MS; Standard recovery = 90.4±18%; Soil MDL = 1.25 ng/g dw, LOD = 1.02 ng/g dw, LOQ = 1.76 ng/g dw
Transformation Products, Statistics, and Kinetics	not reported; std dev reported; not applicable
Reference Substance and Reference Substance Results	not applicable; not applicable

EVALUATION

Domain	Metric		Rating	Comments
Domain 1: Test Substance				
	Metric 1:	Test Substance Identity	High	The test substance was identified.
	Metric 2:	Test Substance Purity	High	The source the test substance was reported; analytical standard source and purity reported.
Domain 2: Test Design				
	Metric 3:	Study Controls	N/A	The study did not require concurrent control groups.
	Metric 4:	Test Substance Stability	High	The test substance preparation and storage conditions were reported.
Domain 3: Test Conditions				
	Metric 5:	Test Method Suitability	N/A	The metric is not applicable to the study.
	Metric 6:	Testing Conditions	Medium	Limited detail regarding sampling sites.
	Metric 7:	Testing Consistency	N/A	The metric is not applicable to the study.
	Metric 8:	System Type and Design	High	Equilibrium is assumed in field studies.
Domain 4: Test Organisms				

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OECD Harmonized Template:	Miscellaneous
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		EVALUATION		
Domain		Metric	Rating	Comments
	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	The assessment methodology did not address or report the outcome of interest; site specific monitoring of one environmental media.
	Metric 12:	Test Substance Purity	High	Sampling was appropriate.
Domain 6: Confounding/Variable Control				
	Metric 13:	Confounding Variables	N/A	The metric is not appplicable to the study.
	Metric 14:	Health Outcomes Unrelated to Exposure	N/A	The metric is not appplicable to the study.
Domain 7: Data Presentation and Analysis				
	Metric 15:	Data Reporting	High	Data reporting was appropriate.
	Metric 16:	Statistical Methods and Kinetic Calculations	N/A	The metric is not applicable to the study.
Domain 8: Other				
	Metric 17:	Verification or Plausibility of Results	Medium	The study results were reasonable; however, did not address outcome of interest.
	Metric 18:	QSAR Models	N/A	A QSAR model was not reported.

Overall Quality Determination — High

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

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

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