Cyclotetrasiloxane

Company Information

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SECTION 1: Identification

1.1GHS Product identifier

Product name	Octamethylcyclotetrasiloxane

1.2Other means of identification

Product number	-
Other names	Cyclotetrasiloxane, octamethyl-; Octamethylcyclotetrasiloxane; 2,2,4,4,6,6,8,8-octamethyl-1,3,5,7,2,4,6,8-tetraoxatetrasilocane

1.3Recommended use of the chemical and restrictions on use

Identified uses	Industrial and scientific research use.
Uses advised against	no data available

SECTION 2: Hazard identification

2.1Classification of the substance or mixture

Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 4

Reproductive toxicity, Category 2

2.2GHS label elements, including precautionary statements

Pictogram(s)

Signal word	Warning
Hazard statement(s)	H413 May cause long lasting harmful effects to aquatic life
Precautionary statement(s)	
Prevention	P273 Avoid release to the environment. P203 Obtain, read and follow all safety instructions before use. P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...
Response	P318 IF exposed or concerned, get medical advice.

Storage	P405 Store locked up.
Disposal	P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

2.3Other hazards which do not result in classification

no data available

SECTION 3: Composition/information on ingredients

3.1Substances

Chemical name	Common names and synonyms	CAS number	EC number	Concentration
Octamethylcyclotetrasiloxane	Octamethylcyclotetrasiloxane	556-67-2	209-136-7	100%

SECTION 4: First-aid measures

4.1Description of necessary first-aid measures

If inhaled

Fresh air, rest.

Following skin contact

Remove contaminated clothes. Rinse and then wash skin with water and soap.

Following eye contact

First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then refer for medical attention.

Following ingestion

Rinse mouth. Do NOT induce vomiting. Refer for medical attention .

4.2Most important symptoms/effects, acute and delayed

no data available

4.3Indication of immediate medical attention and special treatment needed, if necessary

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR if necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on the left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Poisons A and B

SECTION 5: Fire-fighting measures

5.1Suitable extinguishing media

Suitable extinguishing media: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2Specific hazards arising from the chemical

Flammable.

5.3Special protective actions for fire-fighters

Use water in large amounts, powder, alcohol-resistant foam, carbon dioxide.

SECTION 6: Accidental release measures

6.1Personal precautions, protective equipment and emergency procedures

Collect leaking and spilled liquid in covered containers as far as possible.

6.2Environmental precautions

Collect leaking and spilled liquid in covered containers as far as possible.

6.3Methods and materials for containment and cleaning up

ACCIDENTAL RELEASE MEASURES: Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.; Environmental precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.; Methods and materials for containment and cleaning up: Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations.

SECTION 7: Handling and storage

7.1Precautions for safe handling

NO open flames. Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

7.2Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Storage class (TRGS 510): Flammable liquids.

SECTION 8: Exposure controls/personal protection

8.1Control parameters

Occupational Exposure limit values

no data available

Biological limit values

no data available

8.2Appropriate engineering controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

8.3Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection

Wear safety spectacles.

Skin protection

Protective gloves.

Respiratory protection

Use ventilation.

Thermal hazards

no data available

SECTION 9: Physical and chemical properties and safety characteristics

Physical state	Liquid
Colour	Oily liquid
Odour	no data available
Melting point/freezing point	19°C(lit.)
Boiling point or initial boiling point and boiling range	175°C
Flammability	Flammable.
Lower and upper explosion limit/flammability limit	no data available
Flash point	54°C(lit.)
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	2.30 cSt at 25 deg C
Solubility	In water, 0.056 mg/L at 23 deg C
Partition coefficient n-octanol/water	log Kow = 6.74 (average of 3 measurements)
Vapour pressure	1.05 mm Hg at 25 deg C
Density and/or relative density	0.956
Relative vapour density	1 (vs air)
Particle characteristics	no data available

SECTION 10: Stability and reactivity

10.1Reactivity

no data available

10.2Chemical stability

Stable under recommended storage conditions.

10.3Possibility of hazardous reactions

no data available

10.4Conditions to avoid

no data available

10.5Incompatible materials

Incompatible materials: Strong oxidizing agents, acids, bases.

10.6Hazardous decomposition products

When heated to decomposition it emits acrid smoke and irritating vapors.

SECTION 11: Toxicological information

Acute toxicity

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

Skin corrosion/irritation

no data available

Serious eye damage/irritation

no data available

Respiratory or skin sensitization

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

no data available

Reproductive toxicity

no data available

STOT-single exposure

no data available

STOT-repeated exposure

no data available

Aspiration hazard

No indication can be given about the rate at which a harmful concentration of this substance in the air is reached on evaporation at 20°C.

SECTION 12: Ecological information

12.1Toxicity

- Toxicity to fish: LC50; Species: Oncorhynchus mykiss (Rainbow trout); Conditions: flow through; Concentration: 10 ug/L for 14 days (95% confidecne limit: 8.5-13 ug/L); flow through
- Toxicity to daphnia and other aquatic invertebrates: no data available
- Toxicity to algae: no data available

- Toxicity to microorganisms: no data available

12.2Persistence and degradability

AEROBIC: Dimethyl siloxanes, in general, are highly resistant to biodegradation(1). Octamethylcyclotetrasiloxane, at 30 ug/L, had 0% biodegradation when incubated with water/sediment under aerobic conditions for 42 days(2). Using OECD Guideline 310 (Ready Biodegradability - CO2 in Sealed Vessels, Headspace Test) and an activated sewage sludge inoculum, octamethylcyclotetrasiloxane, at 10 mg/L, reached only 3.7% of its theoretical CO2 evolution in 29 days(2). Using OECD Guideline 308 (Aerobic and Anaerobic Transformation in Aquatic Sediment Systems), octamethylcyclotetrasiloxane had an aerobic sediment half-life of 242 days at 24 deg C(1).

12.3Bioaccumulative potential

A steady-state BCF of 12,400 and a kinetic BCF of 13,400 were measured for octamethylcyclotetrasiloxane using fathead minnows (Pimephales promelas) which were exposed to a concentration of 0.5 ug/L of octamethylcyclotetrasiloxane for approximately 28 days(1). A steady-state BCF of 3,000-4,000 and a kinetic BCF of 4,100-5,500 were reported for octamethylcyclotetrasiloxane using common carp (Cyprinus carpio)(1). According to a classification scheme(2), this BCF suggests that bioconcentration in aquatic organisms is very high(SRC).

12.4Mobility in soil

Adsorption studies using three soils from the United Kingdom (silt loam, sandy loam and sandy clay loam) determined octamethylcyclotetrasiloxane log Koc values of 4.17-4.27 with an average log Koc of 4.22 (Koc of 16600)(1). According to a classification scheme(2), these Koc values suggest that octamethylcyclotetrasiloxane is expected to be immobile in soil.

12.5Other adverse effects

no data available

SECTION 13: Disposal considerations

13.1Disposal methods

Product

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

Contaminated packaging

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

SECTION 14: Transport information

14.1UN Number

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.2UN Proper Shipping Name

ADR/RID: Not dangerous goods. (For reference only, please check.)	IMDG: Not dangerous goods. (For reference only, please check.)	IATA: Not dangerous goods. (For reference only, please check.)

14.3Transport hazard class(es)

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.4Packing group, if applicable

ADR/RID: Not dangerous goods. (For reference only, please check.)

IMDG: Not dangerous goods. (For reference only, please check.)

IATA: Not dangerous goods. (For reference only, please check.)

14.5Environmental hazards

ADR/RID: No

IMDG: No

IATA: No

14.6Special precautions for user

no data available

14.7Transport in bulk according to IMO instruments

no data available

SECTION 15: Regulatory information

15.1Safety, health and environmental regulations specific for the product in question

Chemical name	Common names and synonyms	CAS number	EC number
Octamethylcyclotetrasiloxane	Octamethylcyclotetrasiloxane	556-67-2	209-136-7
European Inventory of Existing Commercial Chemical Substances (EINECS)			Listed.
EC Inventory			Listed.
United States Toxic Substances Control Act (TSCA) Inventory			Listed.
China Catalog of Hazardous chemicals 2015			Not Listed.
New Zealand Inventory of Chemicals (NZIoC)			Listed.
Philippines Inventory of Chemicals and Chemical Substances (PICCS)			Listed.
Vietnam National Chemical Inventory			Listed.
Chinese Chemical Inventory of Existing Chemical Substances (China IECSC)			Listed.
Korea Existing Chemicals List (KECL)			Listed.

SECTION 16: Other information

Information on revision

Creation Date	July 15, 2019
Revision Date	July 15, 2019

Abbreviations and acronyms

- CAS: Chemical Abstracts Service
- ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road
- RID: Regulation concerning the International Carriage of Dangerous Goods by Rail
- IMDG: International Maritime Dangerous Goods

- IATA: International Air Transportation Association
- TWA: Time Weighted Average
- STEL: Short term exposure limit
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- EC50: Effective Concentration 50%

References

- IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home
- HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm
- IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/
- eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en
- CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple
- ChemIDplus, website: http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp
- ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg
- Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp
- ECHA - European Chemicals Agency, website: https://echa.europa.eu/