


Safety Data Sheet

Cyclopentasiloxane

1. Product and company identification

Product name	: Cyclopentasiloxane
Synonym	: Cyclopentasiloxane, 2,2,4,4,6,6,8,8,10,10-decamethyl-; Cyclopentasiloxane, decamethyl-
INCI Name	: Cyclopentasiloxane
CAS number	: 541-02-6
Material uses	: Industrial applications: Manufacture of cosmetics. Manufacture of personal care products.
Supplier	: TKB Trading, LLC 1101 9th Avenue Oakland, CA 94606 P: 510 922 9027
Information contact	: 510 922 9027

Section 2. Hazards identification

OSHA/HCS status	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	: FLAMMABLE LIQUIDS - Category 4 TOXIC TO REPRODUCTION (Fertility) - Category 2
GHS label elements	
Hazard pictograms	: 
Signal word	: Warning
Hazard statements	: H227 - Combustible liquid. H361 - Suspected of damaging fertility.
Precautionary statements	
Prevention	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P281 - Use personal protective equipment as required. P280 - Wear protective gloves. Wear eye or face protection. P210 - Keep away from flames and hot surfaces. - No smoking.
Response	: P308 + P313 - IF exposed or concerned: Get medical attention.
Storage	: P405 - Store locked up. P403 - Store in a well-ventilated place. P235 - Keep cool.
Disposal	: P501 - Dispose of contents and container in accordance with all local, regional, national and international regulations.
Hazards not otherwise classified	: None known.
See toxicological information (Section 11)	

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: decamethylcyclopentasiloxane
Other means of identification	: Cyclopentasiloxane, 2,2,4,4,6,6,8,8,10,10-decamethyl-; Cyclopentasiloxane, decamethyl-

Ingredient name	%	CAS number
decamethylcyclopentasiloxane	60 - 100	541-02-6
octamethylcyclotetrasiloxane	0.09 - 0.99	556-67-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Skin contact** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : No specific data.
- Inhalation** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
reduced fetal weight
increase in fetal deaths
skeletal malformations

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

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use dry chemical, CO₂, water spray (fog) or foam.

Unsuitable extinguishing media : Do not use water jet.

Specific hazards arising from the chemical : Combustible liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Vapors may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Flash point : Closed cup: 77°C (170.6°F)
Open cup: 82.7°C (180.9°F)

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not ingest. Avoid breathing vapor or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in a segregated and approved area. Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

None.

- Appropriate engineering controls** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.
- Individual protection measures**
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eye/face protection** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- Skin protection**

Section 8. Exposure controls/personal protection

Hand protection	: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
Body protection	: Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Other skin protection	: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
Respiratory protection	: Use a properly fitted, air-purifying or supplied-air respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state	: Liquid. [Clear.]
Color	: Colorless.
Odor	: Odorless.
Odor threshold	: Not available.
pH	: Not available.
Melting point	: -38°C (-36.4°F)
Boiling point	: 211°C (411.8°F)
Flash point	: Closed cup: 77°C (170.6°F) Open cup: 82.7°C (180.9°F)
Evaporation rate	: <1
Flammability (solid, gas)	: Not available.
Lower and upper explosive (flammable) limits	: Greatest known range: Lower: 0.52% Upper: 7% (decamethylcyclopentasiloxane)
Vapor pressure	: 0.1 kPa (1 mm Hg) (at 20°C)
Vapor density	: >1 (Air = 1)
Density	: 0.956 g/cm ³ [25°C (77°F)]
Specific gravity	: Not available.
Solubility	: Insoluble in the following materials: cold water, hot water.
Solubility in water	: 0 g/l
Partition coefficient: n-octanol/water	: Not available.
Auto-ignition temperature	: 372°C (701.6°F)
Decomposition temperature	: >150°C (>302°F)
Viscosity	: Dynamic (room temperature): 3.5 mPa·s (3.5 cP) Kinematic (room temperature): 0.037 cm ² /s (3.7 cSt)
Refractive Index	: 1.396

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.
Incompatible materials	: Reactive or incompatible with the following materials: oxidizing materials Slightly reactive or incompatible with the following materials: oxidizing materials.
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Test	Species	Result	Dose
decamethylcyclopentasiloxane	OECD 403 Acute Inhalation Toxicity	Rat - Male, Female	LC50 Inhalation Dusts and mists	8.67 mg/l Aerosol.
	OECD 402 Acute Dermal Toxicity	Rabbit - Male, Female	LD50 Dermal	>2000 mg/kg
octamethylcyclotetrasiloxane	OECD 401 Acute Oral Toxicity	Rat	LD50 Oral	>5000 mg/kg
	-	Rat	LC50 Inhalation Vapor	36 g/m ³
	-	Rat	LD50 Dermal	1770 mg/kg
	-	Rat	LD50 Oral	1540 mg/kg

Potential chronic health effects

Product/ingredient name	Test	Species	Result	Dose
decamethylcyclopentasiloxane	-	Rat - Male	Chronic NOAEL Oral	100 mg/kg
	-	Rat - Male, Female	Chronic NOAEL Dermal	1600 mg/kg
	-	Rat - Male, Female	Chronic NOAEL Inhalation Vapor	0.081 mg/l

Irritation/Corrosion

Product/ingredient name	Test	Species	Result
decamethylcyclopentasiloxane	-	Rabbit	Eyes - Mild irritant -
	-	Rabbit	Skin - Mild irritant -
octamethylcyclotetrasiloxane	-	Rabbit	Eyes - Mild irritant -
	-	Rabbit	Skin - Mild irritant -

Sensitization

Product/ingredient name	Test	Species	Result
decamethylcyclopentasiloxane	OECD 429 Skin Sensitization: Local Lymph Node Assay	Mouse	Not sensitizing -

Mutagenicity

Product/ingredient name	Test	Experiment	Result
decamethylcyclopentasiloxane	-	Experiment: In vitro Subject: Bacteria	Negative

Section 11. Toxicological information

Carcinogenicity

Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.

Reproductive toxicity

Not available.

Teratogenicity

Product/ingredient name			Result	Dose
octamethylcyclotetrasiloxane	-	Rat	-	700 ppm
	-	Rabbit	-	500 ppm

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
octamethylcyclotetrasiloxane	Chronic NOEC 1.7 to 15 µg/l Fresh water Chronic NOEC 4.4 µg/l Fresh water	Daphnia - Daphnia magna Fish - Oncorhynchus mykiss - Egg	21 days 93 days

Persistence and degradability

Product/ingredient name	Test		Result
decamethylcyclopentasiloxane	OECD 310 Ready Biodegradability - CO ₂ in Sealed Vessels (Headspace Test)		0.14 % - Not readily - 28 days
Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
decamethylcyclopentasiloxane	Fresh water 0.39 days	50%; < 28 day(s)	Not readily


Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
decamethylcyclopentasiloxane	8.023	7060	high
octamethylcyclotetrasiloxane	6.488	-	high

Section 13. Disposal considerations

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	NA1993	Not regulated.	Not regulated.
UN proper shipping name	Combustible liquid, n.o.s. (decamethylcyclopentasiloxane, dodecamethylcyclohexasiloxane)	-	-
Transport hazard class(es)	Combustible liquid. 	-	-
Packing group	III	-	-
Environmental hazards	No.	No.	No.
Additional information	Non-bulk packages (less than or equal to 119 gal) of combustible liquids are not regulated as hazardous materials. <u>Limited quantity</u> Yes. <u>Packaging instruction</u> Passenger aircraft Quantity limitation: 60 L Cargo aircraft Quantity limitation: 220 L <u>Special provisions</u> IB3, T4, TP1	-	-

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(d) H and S data reporting:** decamethylcyclopentasiloxane; dodecamethylcyclohexasiloxane
United States inventory (TSCA 8b): All components are listed or exempted.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 311/312

Classification : Fire hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Date of issue/Date of revision : 2015-02-06

Section 15. Regulatory information

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
octamethylcyclotetrasiloxane	0.09 - 0.99	Yes.	No.	No.	No.	Yes.

State regulations

- Massachusetts** : None of the components are listed.
- New York** : None of the components are listed.
- New Jersey** : None of the components are listed.
- Pennsylvania** : None of the components are listed.
- California Prop. 65** : CALIFORNIA PROPOSITION 65: The following statement is made in order to comply with the California Safe Drinking Water and Toxic Enforcement Act of 1986. This product is not known to the State of California to cause cancer, birth defects or other reproductive harm.

International lists

National inventory

- Australia inventory (AICS)** : All components are listed or exempted.
- Canada inventory** : All components are listed or exempted.
- China inventory (IECSC)** : All components are listed or exempted.
- Europe inventory** : All components are listed or exempted.
- Japan inventory (ENCS)** : All components are listed or exempted.
- New Zealand Inventory of Chemicals (NZIoC)** : All components are listed or exempted.
- Philippines inventory (PICCS)** : All components are listed or exempted.
- Korea inventory (KECI)** : All components are listed or exempted.
- Taiwan inventory (TCSI)** : All components are listed or exempted.
- United States inventory (TSCA 8b)** : All components are listed or exempted.

Our REACH (pre-) registrations DO NOT cover the following:

1. The manufacture of these products by our company outside the EU unless covered by the Only Representative provisions, and
 2. The importation of these products into Europe by other companies. Re-importation by other companies is not covered by our (pre-) registrations
- Customers and other third parties importing and/or re-importing our products into Europe will need either:
- Their own (pre-) registration for substances contained in the imported product, or constituent monomers (imported above 1 tonne per year and >2% by weight) in the case of imported polymers, or
 - In the case of importation only, to make use of the "Only Representative" provisions, if available.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

Health	1
Flammability	2
Physical hazards	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on SDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

National Fire Protection Association (U.S.A.)

Section 16. Other information



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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Classification according to Directive 67/548/EEC [DSD] or Classification according to Directive 1999/45/EC [DPD]

Risk phrases : This product is not classified according to EU legislation.
Safety phrases : Not applicable.

History

Date of printing : 2015-06-03
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Version : 1.03

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▣ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.