



SAFETY DATA SHEET

DOW SILICONES CORPORATION

Product name: XIAMETER™ OFS-6124 Silane

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DOW SILICONES CORPORATION encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: XIAMETER™ OFS-6124 Silane

Recommended use of the chemical and restrictions on use

Identified uses: Surface treatment

COMPANY IDENTIFICATION

DOW SILICONES CORPORATION
2200 WEST SALZBURG ROAD
MIDLAND MI 48686-0994
UNITED STATES

Customer Information Number:

800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 1 800 424 9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable liquids - Category 3

Acute toxicity - Category 4 - Oral

Acute toxicity - Category 4 - Inhalation

Specific target organ toxicity - single exposure - Category 2

Specific target organ toxicity - repeated exposure - Category 2 - Oral

Label elements

Hazard pictograms



Signal word: **WARNING!**

Hazards

Flammable liquid and vapour.

Harmful if swallowed or if inhaled.

May cause damage to organs (Eyes, Central nervous system).

May cause damage to organs (Bladder) through prolonged or repeated exposure if swallowed.

Precautionary statements

Prevention

Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.

Keep container tightly closed.

Keep only in original container.

Ground/bond container and receiving equipment.

Use explosion-proof electrical/ ventilating/ lighting equipment.

Use only non-sparking tools.

Take precautionary measures against static discharge.

Do not breathe mist or vapours.

Wash skin thoroughly after handling.

Do not eat, drink or smoke when using this product.

Use only outdoors or in a well-ventilated area.

Wear protective gloves/ eye protection/ face protection.

Response

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.

IF exposed or concerned: Call a POISON CENTER/ doctor.

In case of fire: Use alcohol-resistant foam, carbon dioxide or water mist to extinguish.

Storage

Store in a well-ventilated place. Keep cool.

Store locked up.

Disposal

Dispose of contents and/or container to an approved waste disposal plant.

Other hazards

May generate flammable hydrogen gas. Avoid contact with water, alcohols, acidic, basic, or oxidizing materials.

Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: Trimethoxyphenylsilane

This product is a substance.

Substance name: Trimethoxyphenylsilane**CASRN:** 2996-92-1

Component	CASRN	Concentration
Trimethoxyphenylsilane	2996-92-1	>= 94.0 - <= 96.0 %
Methanol	67-56-1	>= 0.8 - <= 3.0 %
Cyclohexyltrimethoxysilane	17865-54-2	>= 1.4 - <= 3.0 %
1,2-Bis (trimethoxysilyl) ethane	18406-41-2	>= 0.13 - <= 0.17 %

4. FIRST AID MEASURES

Description of first aid measures**General advice:**

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment.

Inhalation: Move person to fresh air and keep comfortable for breathing. If not breathing, give artificial respiration; if by mouth to mouth use rescuer protection (pocket mask, etc). If breathing is difficult, oxygen should be administered by qualified personnel. Call a physician or transport to a medical facility.

Skin contact: Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Obtain medical attention without delay. Wash clothing before reuse. Properly dispose of contaminated leather items, such as shoes, belts, and watchbands. Suitable emergency safety shower facility should be immediately available.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

Ingestion: Do not induce vomiting. Seek medical attention immediately. If person is fully conscious give 1 cup or 8 ounces (240 ml) of water. If medical advice is delayed and if an adult has swallowed several ounces of chemical, then give 3-4 ounces (1/3-1/2 Cup) (90-120 ml) of hard liquor such as 80 proof whiskey. For children, give proportionally less liquor at a dose of 0.3 ounce (1 1/2 tsp.) (8 ml) liquor for each 10 pounds of body weight, or 2 ml per kg body weight [e.g., 1.2 ounce (2 1/3 tbsp.) for a 40 pound child or 36 ml for an 18 kg child].

Most important symptoms and effects, both acute and delayed:

Harmful if swallowed or if inhaled. May cause damage to organs. May cause damage to organs through prolonged or repeated exposure if swallowed.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Maintain adequate ventilation and oxygenation of the patient. In cases where several ounces (60 - 100 ml) have been ingested, consider the use of ethanol and hemodialysis in the treatment. Consult standard literature for details of treatment. If ethanol is used, a therapeutically effective blood concentration in the range of 100 - 150 mg/dl may be achieved by a rapid loading dose followed by a continuous intravenous infusion. Consult standard literature for details of treatment. 4-Methyl pyrazole (Antizol®) is an effective blocker of alcohol dehydrogenase and should be used in the treatment of ethylene glycol (EG), di- or triethylene glycol (DEG, TEG), ethylene glycol butyl ether (EGBE), or methanol intoxication if available. Fomepizole protocol (Brent, J. et al., New England Journal of Medicine, Feb. 8, 2001, 344:6, p. 424-9): loading dose 15 mg/kg intravenously, follow by bolus dose of 10 mg/kg every 12 hours; after 48 hours, increase bolus dose to 15 mg/kg every 12 hours. Continue fomepizole until serum methanol, EG, DEG, TEG or EGBE are undetectable. The signs and symptoms of poisoning include anion gap metabolic acidosis, CNS depression, renal tubular injury, and possible late stage cranial nerve involvement. Respiratory symptoms, including pulmonary edema, may be delayed. Persons receiving significant exposure should be observed 24-48 hours for signs of respiratory distress. In severe poisoning, respiratory support with mechanical ventilation and positive end expiratory pressure may be required. If lavage is performed, suggest endotracheal and/or esophageal control. Danger from lung aspiration must be weighed against toxicity when considering emptying the stomach. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO₂). Water spray.

Unsuitable extinguishing media: Dry chemical. High volume water jet. Do not use direct water stream..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides. Formaldehyde.

Unusual Fire and Explosion Hazards: Flash back possible over considerable distance.. Applying foam will release significant amounts of hydrogen gas that can be trapped under the foam blanket.. Exposure to combustion products may be a hazard to health.. Flammable concentrations of vapor can accumulate at temperatures above flash point; see Section 9.. Flammable mixtures may exist within the vapor space of containers at room temperature.. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat.. Vapours may form explosive mixtures with air..

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Do not use a solid water stream as it may scatter and spread fire..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Do not allow extinguishing medium to contact container contents. Most fire extinguishing media will cause hydrogen evolution, and once the fire is put out, may

accumulate in poorly ventilated or confined areas and result in flash fire or explosion if ignited. Remove undamaged containers from fire area if it is safe to do so.

Special protective equipment for firefighters: In the event of fire, wear self-contained breathing apparatus.. Use personal protective equipment..

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Remove all sources of ignition. Use personal protective equipment. Eliminate all sources of ignition in vicinity of spill or released vapor to avoid fire or explosion. Ground and bond all containers and handling equipment. Vapor explosion hazard. Keep out of sewers. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. Materials in contact with water, moisture, acids or bases have the potential to generate hydrogen gas. Recovered material should be stored in a vented container. The vent must prevent the ingress of water as further reaction with spilled materials can take place which could lead to overpressurization of the container. See sections: 7, 8, 11, 12 and 13.

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Avoid inhalation of vapour or mist. Avoid contact with eyes. Do not swallow. Keep container tightly closed. Keep away from water. Protect from moisture. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied. Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it is necessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

Conditions for safe storage: Keep in properly labelled containers. Store in original container. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Product may evolve minute quantities of flammable hydrogen gas which can accumulate. Adequately ventilate to maintain vapors

well below flammability limits and exposure guidelines. Do not repackage. Clogged container vents may increase pressure build up. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition. Store in a closed container.

Do not store with the following product types: Strong oxidizing agents. Organic peroxides. Flammable solids. Pyrophoric liquids. Pyrophoric solids. Self-heating substances and mixtures. Substances and mixtures, which in contact with water, emit flammable gases. Explosives. Gases. Unsuitable materials for containers: Do not store in or use containers except the original product package.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
Trimethoxyphenylsilane	Dow IHG	TWA	5 ppm
Methanol	ACGIH	TWA	200 ppm
	Further information: Skin: Danger of cutaneous absorption		
	ACGIH	STEL	250 ppm
	Further information: Skin: Danger of cutaneous absorption		
	OSHA Z-1	TWA	260 mg/m ³ 200 ppm
1,2-Bis (trimethoxysilyl) ethane	Dow IHG	TWA	0.15 Parts per billion
	Dow IHG	STEL	1 Parts per billion

The following substance(s), which have Occupational Exposure Limit(s) (OEL), may be formed during handling or processing: Methanol.

Biological occupational exposure limits

Components	CAS-No.	Control parameters	Biological specimen	Sampling time	Permissible concentration	Basis
Methanol	67-56-1	Methanol	Urine	End of shift (As soon as possible after exposure ceases)	15 mg/l	ACGIH BEI

Exposure controls

Engineering controls: Use engineering controls to maintain airborne level below exposure limit requirements or guidelines. Local exhaust ventilation may be necessary for some operations. Lethal concentrations may exist in areas with poor ventilation.

Individual protection measures

Eye/face protection: Use safety glasses (with side shields).

Skin protection

Hand protection: Use gloves chemically resistant to this material. Examples of preferred glove barrier materials include: Butyl rubber. Natural rubber ("latex"). Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). NOTICE: The selection of a specific

glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

Other protection: Use protective clothing chemically resistant to this material. Selection of specific items such as face shield, boots, apron, or full body suit will depend on the task.

Respiratory protection: Atmospheric levels should be maintained below the exposure guideline. When respiratory protection is required, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply. For emergency and other conditions where the exposure guideline may be exceeded, use an approved positive-pressure self-contained breathing apparatus or positive-pressure air line with auxiliary self-contained air supply. In confined or poorly ventilated areas, use an approved self-contained breathing apparatus or positive pressure air line with auxiliary self-contained air supply.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid
Color	colourless
Odor	alcohol-like
Odor Threshold	No data available
pH	No data available
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	> 65 °C (> 149 °F)
Flash point	closed cup 29.4 °C (84.9 °F)
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.05
Water solubility	No data available
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	1.7 cSt at 25 °C (77 °F)
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

Molecular weight No data available

Particle size Not applicable

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, product can form formaldehyde vapours. Safe handling conditions may be maintained by keeping vapour concentrations within the occupational exposure limit for formaldehyde. Vapours may form explosive mixture with air. Product may evolve flammable hydrogen gas on contact with water, alcohols, acidic or basic materials, many metals or metallic compounds and can form explosive mixtures in air. Hazardous decomposition products will be formed at elevated temperatures. Flammable liquid and vapour.

Conditions to avoid: Avoid static discharge. Heat, flames and sparks. Exposure to moisture

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:

Decomposition products can include and are not limited to: Methanol. Benzene.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data are available.

Information on likely routes of exposure

Inhalation, Eye contact, Skin contact, Ingestion.

Acute toxicity (represents short term exposures with immediate effects - no chronic/delayed effects known unless otherwise noted)

Acute Toxicity Endpoints:

Harmful if swallowed or if inhaled.

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury. Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart. Effects may be delayed.
As product: Single dose oral LD50 has not been determined.

Information for components:**Trimethoxyphenylsilane**

LD50, Rat, female, 1,049 mg/kg OECD 425 or equivalent

This substance may hydrolyze to release Methanol. Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Methanol

Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart. Effects may be delayed. LD50, Rat, > 5,000 mg/kg

Lethal Dose, Humans, 340 mg/kg Estimated.

Lethal Dose, Humans, 29 - 237 ml Estimated.

Cyclohexyltrimethoxysilane

Single dose oral LD50 has not been determined.

For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

This substance may hydrolyze to release Methanol. Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

1,2-Bis (trimethoxysilyl) ethane

LD50, Rat, 1,910 mg/kg

This substance may hydrolyze to release Methanol. Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Acute dermal toxicity**Information for the Product:**

Prolonged skin contact is unlikely to result in absorption of harmful amounts. Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

As product: The dermal LD50 has not been determined.

Information for components:**Trimethoxyphenylsilane**

For similar material(s): LD50, Rabbit, male, 3,014 mg/kg OECD 402 or equivalent

This substance may hydrolyze to release Methanol. Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

Methanol

Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death. LD50, Rabbit, 15,800 mg/kg

Cyclohexyltrimethoxysilane

The dermal LD50 has not been determined.

For similar material(s): LD50, Rat, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

This substance may hydrolyze to release Methanol. Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

1,2-Bis (trimethoxysilyl) ethane

The dermal LD50 has not been determined.

This substance may hydrolyze to release Methanol. Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

Acute inhalation toxicity**Information for the Product:**

Vapor concentrations are attainable which could be hazardous on single exposure. At lower concentrations: Excessive exposure may cause: Respiratory irritation Central nervous system depression Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death. Effects may be delayed.

As product: The LC50 has not been determined.

Information for components:**Trimethoxyphenylsilane**

The LC50 has not been determined.

This substance may hydrolyze to release Methanol. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death.

Methanol

Easily attainable vapor concentrations may cause serious adverse effects, even death. At lower concentrations: May cause respiratory irritation and central nervous system depression. Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death. Effects may be delayed.

LC50, Rat, 4 Hour, vapour, 3 mg/l

Cyclohexyltrimethoxysilane

The LC50 has not been determined.

For similar material(s): LC50, Rat, male and female, 4 Hour, dust/mist, > 5.53 mg/l
OECD Test Guideline 403 No deaths occurred at this concentration.

This substance may hydrolyze to release Methanol. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death.

1,2-Bis (trimethoxysilyl) ethane

LC50, Rat, 4 Hour, vapour, 0.03 mg/l

This substance may hydrolyze to release Methanol. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death.

Skin corrosion/irritation

Not classified based on available information.

Information for the Product:

Based on information for component(s):

Brief contact may cause slight skin irritation with local redness.

Information for components:

Trimethoxyphenylsilane

Prolonged contact is essentially nonirritating to skin.

Methanol

Prolonged contact may cause slight skin irritation with local redness.

Cyclohexyltrimethoxysilane

For similar material(s):

Brief contact may cause moderate skin irritation with local redness.

1,2-Bis (trimethoxysilyl) ethane

Prolonged contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

Serious eye damage/eye irritation

Not classified based on available information.

Information for the Product:

Based on information for component(s):
May cause slight eye irritation.

Information for components:

Trimethoxyphenylsilane

Essentially nonirritating to eyes.
Corneal injury is unlikely.

Methanol

May cause eye irritation.

Cyclohexyltrimethoxysilane

For similar material(s):
May cause slight eye irritation.
Corneal injury is unlikely.

1,2-Bis (trimethoxysilyl) ethane

May cause severe eye irritation.

Sensitization

For skin sensitization:

Not classified based on available information.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:
Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:
No relevant data found.

Information for components:

Trimethoxyphenylsilane

For skin sensitization:
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Methanol

For skin sensitization:
No relevant data found.

For respiratory sensitization:

No relevant data found.

Cyclohexyltrimethoxysilane

For similar material(s):

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

1,2-Bis (trimethoxysilyl) ethane

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause damage to organs (Eyes, Central nervous system).

Information for the Product:

Product test data not available.

Information for components:

Trimethoxyphenylsilane

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Methanol

Causes damage to organs.

Target Organs: Eyes, Central nervous system

Cyclohexyltrimethoxysilane

Evaluation of available data suggests that this material is not an STOT-SE toxicant.

1,2-Bis (trimethoxysilyl) ethane

Available data are inadequate to determine single exposure specific target organ toxicity.

Aspiration Hazard

Not classified based on available information.

Information for the Product:

Based on available information, aspiration hazard could not be determined.

Information for components:

Trimethoxyphenylsilane

Material is not classified as an aspiration hazard based on insufficient data, however materials with low viscosity may be aspirated into the lungs during ingestion or vomiting.

Methanol

May be harmful if swallowed and enters airways.

Cyclohexyltrimethoxysilane

Based on physical properties, not likely to be an aspiration hazard.

1,2-Bis (trimethoxysilyl) ethane

Based on available information, aspiration hazard could not be determined.

Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)

Specific Target Organ Systemic Toxicity (Repeated Exposure)

May cause damage to organs (Bladder) through prolonged or repeated exposure if swallowed.

Information for the Product:

Contains component(s) which have been reported to cause effects on the following organs in animals:

Bladder.

Kidney.

Methanol, a component in this mixture, is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Information for components:

Trimethoxyphenylsilane

In animals, effects have been reported on the following organs:

Bladder.

Kidney.

Methanol

Methanol is highly toxic to humans and may cause central nervous system effects, visual disturbances up to blindness, metabolic acidosis, and degenerative damage to other organs including liver, kidney, and heart.

Cyclohexyltrimethoxysilane

For similar material(s):

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

1,2-Bis (trimethoxysilyl) ethane

In animals, effects have been reported on the following organs:

Nasal Cavity

Respiratory tract.

Eye.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Trimethoxyphenylsilane

No relevant data found.

Methanol

Did not cause cancer in laboratory animals.

Cyclohexyltrimethoxysilane

No relevant data found.

1,2-Bis (trimethoxysilyl) ethane

No relevant data found.

Teratogenicity

Not classified based on available information.

Information for the Product:

Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of rats.

Information for components:

Trimethoxyphenylsilane

Did not cause birth defects or any other fetal effects in laboratory animals.

Methanol

Methanol has caused birth defects in mice at doses nontoxic to the mother as well as slight behavioral effects in offspring of rats.

Cyclohexyltrimethoxysilane

No relevant data found.

1,2-Bis (trimethoxysilyl) ethane

No relevant data found.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

Contains component(s) which did not interfere with reproduction in animal studies. Contains component(s) which did not interfere with fertility in animal studies.

Information for components:

Trimethoxyphenylsilane

In animal studies, did not interfere with reproduction.

Methanol

In animal studies, did not interfere with reproduction.

Cyclohexyltrimethoxysilane

No relevant data found.

1,2-Bis (trimethoxysilyl) ethane

No relevant data found.

Mutagenicity

Not classified based on available information.

Information for the Product:

In vitro genetic toxicity studies were negative for component(s) tested. Contains component(s) which were negative in some animal genetic toxicity studies and positive in others.

Information for components:**Trimethoxyphenylsilane**

In vitro genetic toxicity studies were negative in some cases and positive in other cases. For similar material(s): Animal genetic toxicity studies were negative.

Methanol

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative in some cases and positive in other cases.

Cyclohexyltrimethoxysilane

For similar material(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were predominantly negative.

1,2-Bis (trimethoxysilyl) ethane

In vitro genetic toxicity studies were negative in some cases and positive in other cases.

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data are available.

Toxicity**Trimethoxyphenylsilane****Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Based on data from similar materials

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

For similar material(s):

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

For similar material(s):

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201

For similar material(s):

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, >= 100 mg/l, OECD Test Guideline 201

Toxicity to bacteria

Based on data from similar materials

EC50, activated sludge, 3 Hour, Respiration rates., > 1,000 mg/l, OECD Test Guideline 209

Methanol**Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

LC50, Bluegill sunfish (Lepomis macrochirus), flow-through test, 96 Hour, 15,400 mg/l

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), 48 Hour, > 10,000 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), 96 Hour, Growth rate, 22,000 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

IC50, activated sludge, 3 Hour, Respiration rates., > 1,000 mg/l, OECD Test Guideline 209

Chronic toxicity to fish

NOEC, Oryzias latipes (Orange-red killifish), 200 Hour, 15,800 mg/l

Cyclohexyltrimethoxysilane**Acute toxicity to fish**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

For similar material(s):

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, 35 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

For similar material(s):

EC50, Daphnia magna (Water flea), 48 Hour, 13 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):

ErC50, Desmodesmus subspicatus (green algae), 72 Hour, Growth rate, 45 mg/l, OECD Test Guideline 201 or Equivalent

1,2-Bis (trimethoxysilyl) ethane**Acute toxicity to aquatic invertebrates**

Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).

Material is harmful to aquatic organisms (LC50/EC50/IC50 between 10 and 100 mg/L in the most sensitive species).

For similar material(s):
EL50, Daphnia magna (Water flea), 48 Hour, 92.2 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

For similar material(s):
EL50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 671 mg/l, OECD Test Guideline 201 or Equivalent

Persistence and degradability**Trimethoxyphenylsilane**

Biodegradability: Based on data from similar materials

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 310

Material is not readily biodegradable according to OECD/EEC guidelines.

Methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Theoretical Oxygen Demand: 1.50 mg/mg

Chemical Oxygen Demand: 1.49 mg/mg Dichromate

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	72 %
20 d	79 %

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 8 - 18 d

Method: Estimated.

Cyclohexyltrimethoxysilane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

For similar material(s): 10-day Window: Fail

Biodegradation: 17 %

Exposure time: 28 d

Method: OECD Test Guideline 301D

1,2-Bis (trimethoxysilyl) ethane

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Biodegradation: 64 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Bioaccumulative potential

Trimethoxyphenylsilane

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): < 1 OECD Test Guideline 107 or Equivalent

Methanol

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -0.77 Measured

Bioconcentration factor (BCF): < 10 Leuciscus idus (Golden orfe) Measured

Cyclohexyltrimethoxysilane

Bioaccumulation: For similar material(s): For similar material(s): Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

Partition coefficient: n-octanol/water(log Pow): 4.3 Estimated by Structure-Activity Relationship (SAR).

Bioconcentration factor (BCF): 7.8 - 14 Carp (Cyprinus carpio) 56 d OECD Test Guideline 305 or Equivalent

1,2-Bis (trimethoxysilyl) ethane

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient: n-octanol/water(log Pow): -1.68 at 25 °C

Mobility in soil

Trimethoxyphenylsilane

Partition coefficient (Koc): 7500 Estimated.

Methanol

Partition coefficient (Koc): 0.44 Estimated.

Cyclohexyltrimethoxysilane

No relevant data found.

1,2-Bis (trimethoxysilyl) ethane

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 1: Identified Uses. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted:

Incinerator or other thermal destruction device. For additional information, refer to: Handling & Storage Information, MSDS Section 7 Stability & Reactivity Information, MSDS Section 10 Regulatory Information, MSDS Section 15

Treatment and disposal methods of used packaging: Empty containers should be recycled or otherwise disposed of by an approved waste management facility. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. Do not re-use containers for any purpose.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Flammable liquids, n.o.s.(Methanol, Alkoxysilane)
UN number	UN 1993
Class	3
Packing group	III

Classification for SEA transport (IMO-IMDG):

Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Methanol, Alkoxysilane)
UN number	UN 1993
Class	3
Packing group	III
Marine pollutant	No
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Flammable liquid, n.o.s.(Methanol, Alkoxysilane)
UN number	UN 1993
Class	3
Packing group	III

Further information:

VENTED PACKAGES ARE FORBIDDEN FOR AIR TRANSPORT.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Flammable (gases, aerosols, liquids, or solids)

Hazard not otherwise classified (physical hazards)

Acute toxicity (any route of exposure)

Specific target organ toxicity (single or repeated exposure)

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

Components**CASRN**

Methanol

67-56-1

Pennsylvania Right To Know

The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components**CASRN**

Trimethoxyphenylsilane

2996-92-1

Methanol

67-56-1

Cyclohexyltrimethoxysilane

17865-54-2

California Prop. 65

WARNING: This product can expose you to chemicals including Methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Flammability	Instability
2	3	0

HMIS

Health	Flammability	Physical Hazard
3*	3	1

* = Chronic Effects (See Hazards Identification)

Revision

Identification Number: 4117717 / A713 / Issue Date: 02/02/2024 / Version: 11.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
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ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
STEL	Short term exposure limit
TWA	Time weighted average

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

DOW SILICONES CORPORATION urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the

safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.

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