



SAFETY DATA SHEET

DOW CHEMICAL COMPANY LIMITED

Safety Data Sheet according to REACH Regulation (EC) No 1907/2006, as retained and amended in UK law

Product name: DOWSIL™ EA-6060 Adhesive Part B

Revision Date: 28.07.2023

Version: 11.1

Date of last issue: 12.06.2023

Print Date: 29.07.2023

DOW CHEMICAL COMPANY LIMITED 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.

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Product name: DOWSIL™ EA-6060 Adhesive Part B

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Use at industrial sites: Manufacture of computer, electronic and optical products, electrical equipment. Use in adhesives.

1.3 Details of the supplier of the safety data sheet

COMPANY IDENTIFICATION

DOW CHEMICAL COMPANY LIMITED
5 OAKWATER AVENUE
CHEADLE ROYAL BUSINESS PARK
CHEADLE
SK8 3SR
UNITED KINGDOM

Customer Information Number:

+44 (0) 1663 746518

SDSQuestion@dow.com

Fax:

+44 (0) 1663 746605

1.4 EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 0031 115 694 982

Local Emergency Contact: 00 31 115 69 4982

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Serious eye damage - Category 1 - H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008, as retained and amended in UK law

Hazard pictograms



Signal word: **DANGER**

Hazard statements

H318 Causes serious eye damage.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P234 Keep only in original packaging.
P280 Wear eye protection/ face protection.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER and/or doctor.
P403 Store in a well-ventilated place.

Contains Glycidoxypropyltrimethoxysilane

2.3 Other hazards

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

This product contains octamethylcyclotetrasiloxane (D4) that has been identified by the Member State Committee of ECHA as fulfilling the PBT and vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See Section 12 for additional information.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone elastomer

3.2 Mixtures

This product is a mixture.

CASRN / EC-No. / Index-No.	UK REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008, as retained and amended in UK law
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CASRN 14808-60-7 EC-No. 238-878-4 Index-No. —	—	>= 20.0 - <= 27.0 %	Quartz	STOT RE 1; H372 (Lungs) Acute toxicity estimate Acute oral toxicity: > 5,000 mg/kg
CASRN 68909-20-6 EC-No. 272-697-1 Index-No. 014-052-00-7	—	>= 6.0 - <= 10.0 %	silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica	STOT RE 2; H373 (Lungs) EUH066 Acute toxicity estimate Acute oral toxicity: > 2,000 mg/kg Acute dermal toxicity: > 2,000 mg/kg
CASRN 2530-83-8 EC-No. 219-784-2 Index-No. —	—	>= 0.4 - <= 3.6 %	Glycidoxypyrroltrimethoxysilane	Eye Dam. 1; H318 Aquatic Chronic 3; H412 Acute toxicity estimate Acute oral toxicity: 8,025 mg/kg Acute inhalation toxicity: > 5.3 mg/l, 4 Hour, dust/mist Acute dermal toxicity: 4,250 mg/kg
CASRN 87135-01-1 EC-No. 617-969-6 Index-No. —	—	<= 3.0 %	Bis(trimethoxysilyl)hexane	STOT RE 1; H372 (Bladder) Acute toxicity estimate Acute oral toxicity: > 2,000 mg/kg Acute inhalation toxicity: > 0.042 mg/l, 4 Hour, vapour
CASRN 107-46-0 EC-No. 203-492-7 Index-No. —	—	<= 0.17 %	Hexamethyldisiloxane	Flam. Liq. 2; H225 Aquatic Acute 1; H400 Aquatic Chronic 2; H411 M-Factor (Acute aquatic toxicity): 1 Acute toxicity estimate

				Acute oral toxicity: > 5,000 mg/kg Acute inhalation toxicity: 106 mg/l, 4 Hour, vapour Acute dermal toxicity: > 2,000 mg/kg
CASRN 556-67-2 EC-No. 209-136-7 Index-No. 014-018-00-1	—	>= 0.13 - <= 0.16 %	octamethylcyclotetrasiloxane [D4]	Flam. Liq. 3; H226 Repr. 2; H361f Aquatic Chronic 1; H410 M-Factor (Chronic aquatic toxicity): 10 Acute toxicity estimate Acute oral toxicity: > 4,800 mg/kg Acute inhalation toxicity: 36 mg/l, 4 Hour, dust/mist Acute dermal toxicity: > 2,400 mg/kg

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

4.1 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; consult a physician.

Skin contact: Wash off with plenty of water. Suitable emergency safety shower facility should be available in work area.

Eye contact: Wash immediately and continuously with flowing water for at least 30 minutes. Remove contact lenses after the first 5 minutes and continue washing. Obtain prompt medical consultation, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

Ingestion: Rinse mouth with water. No emergency medical treatment necessary.

4.2 Most important symptoms and effects, both acute and delayed:

Causes serious eye damage.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician: Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media

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

Unsuitable extinguishing media: Dry chemical.

5.2 Special hazards arising from the substance or mixture

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

Unusual Fire and Explosion Hazards: 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..

5.3 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 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..

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

6.2 Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

6.3 Methods and materials for containment and cleaning up: Wipe up or scrape up and contain for salvage or disposal. 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.

6.4 Reference to other sections:

See sections: 7, 8, 11, 12 and 13.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for safe handling: Do not swallow. Do not get in eyes. Avoid prolonged or repeated contact with skin. Keep container tightly closed. Keep away from water. Protect from moisture. Take care to prevent spills, waste and minimize release to the environment. 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 only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

7.2 Conditions for safe storage, including any incompatibilities: Keep in properly labelled containers. Store in original container. Store locked up. Keep tightly closed. 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. Store in a closed container.

Do not store with the following product types: Strong oxidizing agents.

Unsuitable materials for containers: Do not store in or use containers except the original product package.

7.3 Specific end use(s): See the technical data sheet on this product for further information.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 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
Glycidoxypropyltrimethoxysilane	Dow IHG	TWA	0.5 ppm
Hexamethyldisiloxane	Dow IHG	TWA	50 ppm
octamethylcyclotetrasiloxane [D4]	US WEEL	TWA	10 ppm
methanol	ACGIH	TWA	200 ppm
	Further information: Skin: Danger of cutaneous absorption		
	ACGIH	STEL	250 ppm
	Further information: Skin: Danger of cutaneous absorption		
	GB EH40	TWA	266 mg/m3 200 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances		

	are those for which there are concerns that dermal absorption will lead to systemic toxicity.
	GB EH40 STEL 333 mg/m3 250 ppm
	Further information: Sk: Can be absorbed through the skin. The assigned substances are those for which there are concerns that dermal absorption will lead to systemic toxicity.

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

Methanol.

Although some of the components of this product may have exposure guidelines, no exposure would be expected under normal handling conditions due to the physical state of the material.

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

Recommended monitoring procedures

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods.
Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods.
Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.

L'Institut National de Recherche et de Sécurité, (INRS), France.

Derived No Effect Level

Glycidoxypropyltrimethoxysilane

Workers

Acute systemic effects	Acute local effects	Long-term systemic effects	Long-term local effects

Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	10 mg/kg bw/day	70.5 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	26400 mg/m3	n.a.	n.a.	n.a.	5 mg/kg bw/day	17 mg/m3	5 mg/kg bw/day	n.a.	n.a.

Bis(trimethoxysilyl)hexane

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	0.03 mg/kg bw/day	0.2 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.013 mg/kg bw/day	n.a.	n.a.

Hexamethyldisiloxane

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	333 mg/kg bw/dav	53.4 mg/m3	n.a.	n.a.

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	167 mg/kg bw/day	13.3 mg/m3	0.27 mg/kg bw/day	n.a.	n.a.

octamethylcyclotetrasiloxane [D4]

Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	73 mg/m3	n.a.	73 mg/m3

Consumers

<i>Acute systemic effects</i>			<i>Acute local effects</i>		<i>Long-term systemic effects</i>			<i>Long-term local effects</i>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	13 mg/m ³	3.7 mg/kg bw/day	n.a.	13 mg/m ³

Predicted No Effect Concentration

Glycidoxypropyltrimethoxysilane

Compartment	PNEC
Fresh water	0.45 mg/l
Intermittent use/release	0.45 mg/l
Marine water	0.045 mg/l
Sewage treatment plant	8.2 mg/l
Fresh water sediment	1.6 mg/kg dry weight (d.w.)
Marine sediment	0.16 mg/kg dry weight (d.w.)
Soil	0.063 mg/kg dry weight (d.w.)

Bis(trimethoxysilyl)hexane

Compartment	PNEC
Fresh water	0.074 mg/l
Intermittent use/release	0.74 mg/l
Marine water	0.0074 mg/l
Sewage treatment plant	74 mg/l
Fresh water sediment	0.27 mg/l
Marine sediment	0.027 mg/l
Soil	0.01 mg/l

Hexamethyldisiloxane

Compartment	PNEC
Fresh water	0.002 mg/l
Intermittent use/release	0.003 mg/l
Marine water	0.0 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	8.9 mg/kg dry weight (d.w.)
Marine sediment	0.890 mg/kg dry weight (d.w.)
Soil	0.083 mg/kg dry weight (d.w.)
Oral	5.3 mg/kg dry weight (d.w.)

octamethylcyclotetrasiloxane [D4]

Compartment	PNEC
Fresh water	0.0015 mg/l
Marine water	0.00015 mg/l
Sewage treatment plant	10 mg/l
Fresh water sediment	3 mg/kg dry weight (d.w.)

Marine sediment	0.3 mg/kg dry weight (d.w.)
Soil	0.84 mg/kg dry weight (d.w.)
Oral	41 mg/kg food

8.2 Exposure controls

Engineering controls: Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

Individual protection measures

Eye/face protection: Use chemical goggles. Chemical goggles should be consistent with EN 166 or equivalent.

Skin protection

Hand protection: Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl chloride ("PVC" or "vinyl"). Natural rubber ("latex"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 4 or higher (breakthrough time greater than 120 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 1 or higher (breakthrough time greater than 10 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. 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: Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, use an approved respirator. When respiratory protection is required, use an approved positive-pressure self-contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance

Physical state	paste
Color	white
Odor	slight
Odor Threshold	No data available
pH	Not applicable, substance/mixture is non-soluble (in water)
Melting point/range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	Not applicable
Flash point	Seta closed cup >100 °C
Evaporation Rate (Butyl Acetate = 1)	Not applicable
Flammability (solid, gas)	Not classified as a flammability hazard
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	Not applicable
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.3
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	Not applicable
Kinematic Viscosity	Not applicable
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.

9.2 Other information

Molecular weight	No data available
Particle size	No data available

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

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: Not classified as a reactivity hazard.

10.2 Chemical stability: Stable under normal conditions.

10.3 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. 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.

10.4 Conditions to avoid: Exposure to moisture

10.5 Incompatible materials: Avoid contact with oxidizing materials.

10.6 Hazardous decomposition products:

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

SECTION 11: TOXICOLOGICAL INFORMATION

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

11.1 Information on toxicological effects

Information on likely routes of exposure

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:

Acute oral toxicity

Information for the Product:

Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts.

As product: Single dose oral LD50 has not been determined.

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

Information for components:

Quartz

For similar material(s): LD50, Rat, > 5,000 mg/kg

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials: LD50, Rat, > 2,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

Glycidoxypropyltrimethoxysilane

LD50, Rat, male and female, 8,025 mg/kg OECD 401 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.

Bis(trimethoxysilyl)hexane

LD50, Rat, male and female, > 2,000 mg/kg 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.

Hexamethyldisiloxane

LD50, Rat, > 5,000 mg/kg

octamethylcyclotetrasiloxane [D4]

LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

Acute dermal toxicity

Information for the Product:

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

Based on information for component(s):
LD50, > 2,000 mg/kg Estimated.

Information for components:

Quartz

The dermal LD50 has not been determined.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

The dermal LD50 has not been determined.

For similar material(s): LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

Glycidoxypropyltrimethoxysilane

LD50, Rabbit, male, 4,250 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.

Bis(trimethoxysilyl)hexane

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.

Hexamethyldisiloxane

LD50, Rat, > 2,000 mg/kg No deaths occurred at this concentration.

octamethylcyclotetrasiloxane [D4]

LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation.

As product: The LC50 has not been determined.

Information for components:

Quartz

The LC50 has not been determined.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

The LC50 has not been determined.

Glycidoxypropyltrimethoxysilane

LC50, Rat, 4 Hour, dust/mist, > 5.3 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.

Bis(trimethoxysilyl)hexane

LC50, Rat, male and female, 4 Hour, vapour, > 0.042 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.

Hexamethyldisiloxane

LC50, Rat, male and female, 4 Hour, vapour, 106 mg/l OECD Test Guideline 403

octamethylcyclotetrasiloxane [D4]

LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

Skin corrosion/irritation

Information for the Product:

Based on information for component(s):

Brief contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Information for components:**Quartz**

May cause skin irritation due to mechanical abrasion.
May cause drying and flaking of the skin.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials:
Brief contact is essentially nonirritating to skin.
Repeated exposure may cause skin dryness or cracking.

Glycidoxypropyltrimethoxysilane

Brief contact may cause slight skin irritation with local redness.
Prolonged contact may cause moderate skin irritation with local redness.

Bis(trimethoxysilyl)hexane

Essentially nonirritating to skin.

Hexamethyldisiloxane

Brief contact is essentially nonirritating to skin.
Prolonged contact may cause skin irritation with local redness.
May cause more severe response on covered skin (under clothing, gloves).

octamethylcyclotetrasiloxane [D4]

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Causes serious eye damage.

Information for the Product:

Based on information for component(s):
May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Information for components:**Quartz**

Solid or dust may cause irritation or corneal injury due to mechanical action.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials:
May cause irritation or corneal injury due to mechanical action.

Glycidoxypropyltrimethoxysilane

May cause severe irritation with corneal injury which may result in permanent impairment of vision, even blindness. Chemical burns may occur.

Bis(trimethoxysilyl)hexane

Essentially nonirritating to eyes.

Hexamethyldisiloxane

May cause slight temporary eye irritation.

Corneal injury is unlikely.

Vapor or mist may cause eye irritation.

octamethylcyclotetrasiloxane [D4]

Essentially nonirritating to eyes.

Sensitization

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:

Quartz

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

For skin sensitization:

Based on testing for product(s) in this family of materials:

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

For respiratory sensitization:

No relevant data found.

Glycidoxypropyltrimethoxysilane

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

Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:

No relevant data found.

Bis(trimethoxysilyl)hexane

For skin sensitization:

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

For respiratory sensitization:

No relevant data found.

Hexamethyldisiloxane

For skin sensitization:

Did not cause allergic skin reactions when tested in humans.

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

For respiratory sensitization:

No relevant data found.

octamethylcyclotetrasiloxane [D4]

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

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)**Information for the Product:**

Product test data not available.

Information for components:**Quartz**

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

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

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

Glycidoxypropyltrimethoxysilane

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

Bis(trimethoxysilyl)hexane

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

Hexamethyldisiloxane

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

octamethylcyclotetrasiloxane [D4]

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

Aspiration Hazard**Information for the Product:**

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

Information for components:**Quartz**

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

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

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

Glycidoxypropyltrimethoxysilane

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

Bis(trimethoxysilyl)hexane

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.

Hexamethyldisiloxane

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

octamethylcyclotetrasiloxane [D4]

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.

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)**Information for the Product:**

Product test data not available.

Information for components:**Quartz**

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

Kidney.

Repeated excessive exposure to crystalline silica may cause silicosis, a progressive and disabling disease of the lungs.

Due to the physical state of the material, this component is not expected to be bioavailable under normal handling and processing conditions.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

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

lung

Due to the physical state of the material, this component is not expected to be bioavailable under normal handling and processing conditions.

Glycidoxypropyltrimethoxysilane

For similar material(s):

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

Bis(trimethoxysilyl)hexane

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

Bladder

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

Liver

Stomach

Dose levels producing these effects were many times higher than any dose levels expected from exposure due to use.

Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

Hexamethyldisiloxane

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

Liver.

Testes.

Kidney.

However, the effects are species specific and are not relevant to humans.

This material contains hexamethyldisiloxane (HMDS). Repeated inhalation exposure in rats to HMDS resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

octamethylcyclotetrasiloxane [D4]

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

Kidney.

Liver.

Respiratory tract.

Female reproductive organs.

Carcinogenicity

Information for the Product:

Product test data not available.

Information for components:

Quartz

Has caused cancer in humans. Has caused cancer in laboratory animals. Due to the physical state of the material, this component is not expected to be bioavailable under normal handling and processing conditions.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

No relevant data found.

Glycidoxypropyltrimethoxysilane

Did not cause cancer in laboratory animals.

Bis(trimethoxysilyl)hexane

No relevant data found.

Hexamethyldisiloxane

Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans. Early onset of testicular cell tumors has been observed that are spontaneous and common in rats. These effects are believed to be species specific and unlikely to occur in humans.

octamethylcyclotetrasiloxane [D4]

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

Teratogenicity**Information for the Product:**

Product test data not available.

Information for components:**Quartz**

For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials: Did not cause birth defects or any other fetal effects in laboratory animals.

Glycidoxypropyltrimethoxysilane

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

Bis(trimethoxysilyl)hexane

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

Hexamethyldisiloxane

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

octamethylcyclotetrasiloxane [D4]

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

Reproductive toxicity**Information for the Product:**

Product test data not available.

Information for components:**Quartz**

No relevant data found.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials: In animal studies, did not interfere with reproduction.

Glycidoxypropyltrimethoxysilane

In animal studies, did not interfere with reproduction.

Bis(trimethoxysilyl)hexane

In animal studies, did not interfere with fertility.

Hexamethyldisiloxane

In animal studies, did not interfere with reproduction.

octamethylcyclotetrasiloxane [D4]

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

Mutagenicity

Information for the Product:

Product test data not available.

Information for components:

Quartz

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

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Based on testing for product(s) in this family of materials: In vitro genetic toxicity studies were negative.

Glycidoxypropyltrimethoxysilane

Glycidoxypropyltrimethoxysilane was found to be genetically active in Ames reverse mutation assays, In Vitro sister chromatid exchange assays, and an In Vivo mouse micronucleus assay. This ingredient was not genetically active in an In Vivo cytogenetic assay (mice) or in an In Vivo sister chromatid exchange assay (rabbits, rats). The potential relevance of these data to humans is not known.

Bis(trimethoxysilyl)hexane

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

Hexamethyldisiloxane

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

octamethylcyclotetrasiloxane [D4]

In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

SECTION 12: ECOLOGICAL INFORMATION

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

12.1 Toxicity

Quartz

Acute toxicity to fish

Based on information for a similar material:

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

For similar material(s):

LC50, Danio rerio (zebra fish), 96 Hour, 5,000 - 10,000 mg/l

Acute toxicity to aquatic invertebrates

For similar material(s):

EC50, Daphnia magna (Water flea), 48 Hour, 731 mg/l

For similar material(s):

EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants

For similar material(s):

EC50, Pseudokirchneriella subcapitata (algae), 72 Hour, Biomass, 440 mg/l

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

Based on testing for product(s) in this family of materials:

LC50, Danio rerio (zebra fish), 96 Hour, > 1,000 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

Based on testing for product(s) in this family of materials:

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

Acute toxicity to algae/aquatic plants

ErC50, Scenedesmus quadricauda (Green algae), 72 Hour, > 10,000 mg/l, OECD Test Guideline 201

Toxicity to bacteria

Based on testing for product(s) in this family of materials:

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

Glycidoxypropyltrimethoxysilane

Acute toxicity to fish

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

LC50, Carp (Cyprinus carpio), semi-static test, 96 Hour, 55 mg/l, Directive 67/548/EEC, Annex V, C.1.

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, 324 mg/l

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (algae), static test, 96 Hour, Growth rate, 350 mg/l, OECD Test Guideline 201 or Equivalent
NOEC, Pseudokirchneriella subcapitata (algae), static test, 96 Hour, Growth rate, 130 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, activated sludge, Static, 3 Hour, Respiration rates., > 100 mg/l, OECD 209 Test

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 100 mg/l

Bis(trimethoxysilyl)hexane

Acute toxicity to fish

Material is not classified as dangerous to aquatic organisms (LC50/EC50/IC50/LL50/EL50 greater than 100 mg/L in most sensitive species).

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

Acute toxicity to aquatic invertebrates

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

Acute toxicity to algae/aquatic plants

EC50, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, > 100 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

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

Hexamethyldisiloxane

Acute toxicity to fish

Material is very toxic to aquatic organisms (LC50/EC50/IC50 below 1 mg/L in the most sensitive species).

LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 0.46 mg/l

Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility

ErC50, Selenastrum capricornutum (green algae), 72 Hour, Growth rate, > 0.55 mg/l, OECD Test Guideline 201

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 0.08 mg/l

octamethylcyclotetrasiloxane [D4]

Acute toxicity to fish

Based on testing of comparable products: The estimated maximum aqueous concentration of Octamethyl Cyclotetrasiloxane (D4) from migration to water from the product as supplied is below the D4 established no-effect threshold (< 0.0079 mg/L) for aquatic organisms.

Chronic toxicity to aquatic invertebrates

Based on testing for product(s) in this family of materials:
Not classified due to data which are conclusive although insufficient for classification.

12.2 Persistence and degradability

Quartz

Biodegradability: Biodegradation is not applicable.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

Biodegradability: Biodegradation is not applicable.

Glycidoxypropyltrimethoxysilane

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

10-day Window: Fail

Biodegradation: 37 %

Exposure time: 28 d

Method: Regulation (EC) No. 440/2008, Annex, C.4-A

Stability in Water (1/2-life)

Hydrolysis, DT50, 6.5 Hour, pH 7, Half-life Temperature 24.5 °C, OECD Test Guideline 111

Hydrolysis, DT50, 0.15 Hour, pH 5, Half-life Temperature 24.5 °C, OECD Test Guideline 111

Hydrolysis, DT50, 0.002 Hour, pH 9, Half-life Temperature 24.5 °C, OECD Test Guideline 111

Bis(trimethoxysilyl)hexane

Biodegradability: Material is expected to be readily biodegradable.

10-day Window: Fail

Biodegradation: 74 %

Exposure time: 28 d

Method: OECD Test Guideline 301B

Stability in Water (1/2-life)

Hydrolyses readily., Hydrolysis, DT50, 5.2 Hour, pH 7

Hexamethyldisiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability. This material rapidly hydrolyzes to products that are either readily or ultimately biodegradable.

10-day Window: Not applicable

Biodegradation: 2 %

Exposure time: 28 d

Method: OECD Test Guideline 301C

Stability in Water (1/2-life)

Hydrolyses on contact with water.

octamethylcyclotetrasiloxane [D4]

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

10-day Window: Not applicable

Biodegradation: 3.7 %

Exposure time: 28 d

Method: OECD Test Guideline 310

Stability in Water (1/2-life)

Hydrolysis, DT50, 3.9 d, pH 7, Half-life Temperature 25 °C, OECD Test Guideline 111

12.3 Bioaccumulative potential**Quartz****Bioaccumulation:** Partitioning from water to n-octanol is not applicable.**silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica****Bioaccumulation:** No relevant data found.**Glycidoxypropyltrimethoxysilane****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 0.5 Estimated by Structure-Activity Relationship (SAR).**Bis(trimethoxysilyl)hexane****Bioaccumulation:** Bioconcentration potential is low (BCF < 100 or Log Pow < 3).**Partition coefficient: n-octanol/water(log Pow):** 1.7 at 20 °C Estimated by Structure-Activity Relationship (SAR).**Hexamethyldisiloxane****Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5). Reacts with water.**Partition coefficient: n-octanol/water(log Pow):** 5.06 Measured**Bioconcentration factor (BCF):** 1,971 Carp (Cyprinus carpio) OECD Test Guideline 305C**octamethylcyclotetrasiloxane [D4]****Bioaccumulation:** Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).**Partition coefficient: n-octanol/water(log Pow):** 6.49 Measured**Bioconcentration factor (BCF):** 12,400 Pimephales promelas (fathead minnow) Measured**12.4 Mobility in soil****Quartz**

No relevant data found.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

No relevant data found.

Glycidoxypropyltrimethoxysilane

No relevant data found.

Bis(trimethoxysilyl)hexane

No relevant data found.

Hexamethyldisiloxane**Partition coefficient (Koc):** 390 - 4600 Estimated.**octamethylcyclotetrasiloxane [D4]****Partition coefficient (Koc):** 16596 OECD Test Guideline 106

12.5 Results of PBT and vPvB assessment

Quartz

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Glycidoxypropyltrimethoxysilane

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Bis(trimethoxysilyl)hexane

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

Hexamethyldisiloxane

This substance is not considered to be persistent, bioaccumulating and toxic (PBT). This substance is not considered to be very persistent and very bioaccumulating (vPvB).

octamethylcyclotetrasiloxane [D4]

Octamethylcyclotetrasiloxane (D4) meets the current criteria for PBT and vPvB under REACH Annex XIII or other regionally specific criteria. However, D4 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D4 is not biomagnifying in aquatic and terrestrial food webs. D4 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D4 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

This substance is considered to be persistent, bioaccumulating and toxic (PBT).

This substance is considered to be very persistent and very bioaccumulating (vPvB).

12.6 Other adverse effects

Quartz

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

silanamine, 1,1,1-trimethyl-N-(trimethylsilyl)-, hydrolysis products with silica

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Glycidoxypropyltrimethoxysilane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Bis(trimethoxysilyl)hexane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

Hexamethyldisiloxane

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

octamethylcyclotetrasiloxane [D4]

This substance is not on the Montreal Protocol list of substances that deplete the ozone layer.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to ECDirective 2008/98/EC, provided it fulfils the criteria listed in Annex III of this directive. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

SECTION 14: TRANSPORT INFORMATION

Classification for ROAD and Rail transport (ADR/RID):

- | | |
|-----------------------------------|---|
| 14.1 UN number or ID number | Not applicable |
| 14.2 UN proper shipping name | Not regulated for transport |
| 14.3 Transport hazard class(es) | Not applicable |
| 14.4 Packing group | Not applicable |
| 14.5 Environmental hazards | Not considered environmentally hazardous based on available data. |
| 14.6 Special precautions for user | No data available. |

Classification for INLAND waterways (ADNR/ADN):

Consult your Dow contact before transporting by inland waterway

Classification for SEA transport (IMO-IMDG):

- | | |
|--|---|
| 14.1 UN number or ID number | Not applicable |
| 14.2 UN proper shipping name | Not regulated for transport |
| 14.3 Transport hazard class(es) | Not applicable |
| 14.4 Packing group | Not applicable |
| 14.5 Environmental hazards | Not considered as marine pollutant based on available data. |
| 14.6 Special precautions for user | No data available. |
| 14.7 Maritime transport in bulk according to IMO instruments | Consult IMO regulations before transporting ocean bulk |

Classification for AIR transport (IATA/ICAO):

- | | |
|---------------------------------|-----------------------------|
| 14.1 UN number or ID number | Not applicable |
| 14.2 UN proper shipping name | Not regulated for transport |
| 14.3 Transport hazard class(es) | Not applicable |

- 14.4 **Packing group** Not applicable
14.5 **Environmental hazards** Not applicable
14.6 **Special precautions for user** No data available.

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.

SECTION 15: REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**UK REACH - UK Statutory Instruments 2019 No.758 as amended**

This product contains only components that have been either registered, notified for downstream user import (DUIN), are exempt from registration, are regarded as registered or are not subject to registration according to UK Statutory Instruments 2019 No.758 as amended (UK REACH)., Polymers are exempted from registration under REACH. All relevant starting materials and additives have been registered, notified for downstream user import (DUIN) or are exempt from registration according to UK Statutory Instruments 2019 No.758 as amended (UK REACH)., The aforementioned indications of the UK REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, expressed or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

UK REACH List of restrictions (Annex 17)

Conditions of restriction for the following entries should be considered:
octamethylcyclotetrasiloxane [D4] (Number on list 70)

Authorisation status under REACH:

The following substance/s contained in this product might be or is/are subject to authorization in accordance with REACH:

CAS-No.: 556-67-2	Name: octamethylcyclotetrasiloxane [D4]
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Authorisation status: listed in the Candidate List of Substances of Very High Concern for Authorisation

Authorisation number: Not available

Sunset date: Not available

Exempted (Categories of) Uses: Not available

Control of Major Accident Hazards Regulations 2015 (COMAH)

Listed in Regulation: Not applicable

Further information

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to new and expectant mothers at work contained in Regulation 16 to 18) and of the Pregnant Workers Directive 92/85/EEC.

Take note of The Management of Health and Safety at Work Regulations 1999 (requirements relating to protection of young people at work contained in Regulation 19) and of Directive 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapour.
H226	Flammable liquid and vapour.
H318	Causes serious eye damage.
H361f	Suspected of damaging fertility.
H372	Causes damage to organs through prolonged or repeated exposure if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure if inhaled.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008

Eye Dam. - 1 - H318 - Calculation method

Revision

Identification Number: 4135856 / A279 / Issue Date: 28.07.2023 / Version: 11.1

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)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short-term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)
Aquatic Acute	Short-term (acute) aquatic hazard

Aquatic Chronic	Long-term (chronic) aquatic hazard
Eye Dam.	Serious eye damage
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity
STOT RE	Specific target organ toxicity - repeated exposure

Full text of other abbreviations

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; ECx - Concentration associated with x% response; 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; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; 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; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; 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.

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