



SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

Product name: DOWSIL™ 993 Structural Glazing Catalyst Clear

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THE DOW CHEMICAL COMPANY 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: DOWSIL™ 993 Structural Glazing Catalyst Clear

Recommended use of the chemical and restrictions on use

Identified uses: Vulcanising agents

COMPANY IDENTIFICATION

THE DOW CHEMICAL COMPANY
2211 H.H. DOW WAY
MIDLAND MI 48674
UNITED STATES

Customer Information Number:

800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: CHEMTREC +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)

Skin irritation - Category 2

Serious eye damage - Category 1

Skin sensitisation - Category 1

Specific target organ toxicity - repeated exposure - Category 1 - Oral

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

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Causes skin irritation.

May cause an allergic skin reaction.

Causes serious eye damage.

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

May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention

Do not breathe dust.

Wash skin thoroughly after handling.

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

Contaminated work clothing must not be allowed out of the workplace.

Wear protective gloves/ eye protection/ face protection.

Response

IF ON SKIN: Wash with plenty of soap and water.

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.

Get medical advice or attention if you feel unwell.

If skin irritation or rash occurs: Get medical advice/ attention.

Take off contaminated clothing and wash before reuse.

Disposal

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

Other hazards

No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Inorganic and organic compounds, Mixture

This product is a mixture.

Component	CASRN	Concentration
Methyltrimethoxysilane	1185-55-3	>= 10.0 - <= 15.0 %
Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane	474530-85-3	>= 10.0 - <= 15.0 %

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	1760-24-3	>= 2.1 - <= 5.0 %
Bis(trimethoxysilyl)hexane	87135-01-1	>= 2.7 - <= 4.5 %
3-Aminopropyltriethoxysilane	919-30-2	>= 0.7 - <= 1.1 %
Methanol	67-56-1	<= 1.1 %
N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine	68845-16-9	<= 0.5 %
Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane	68928-76-7	>= 0.08 - <= 0.14 %
N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine	74956-86-8	<= 0.13 %

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: 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: 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:

Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Causes damage to organs through prolonged or repeated exposure if swallowed. May cause damage to organs through prolonged or repeated exposure if inhaled.

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. Chemical eye burns may require extended irrigation. Obtain prompt consultation, preferably from an ophthalmologist. If burn is present, treat as any thermal burn, after decontamination. 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). Dry chemical. Water spray.

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides. Nitrogen oxides (NO_x). Formaldehyde.

Unusual Fire and Explosion Hazards: Exposure to combustion products may be a hazard to health..

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.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage..

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. 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: Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels 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.

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.

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

7. HANDLING AND STORAGE

Precautions for safe handling: Do not get on skin or clothing. Do not swallow. Do not get in eyes. Keep container tightly closed. 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 with local exhaust ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Conditions for safe storage: Keep in properly labelled containers. Keep tightly closed. Store in accordance with the particular national regulations.

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

Unsuitable materials for containers: None known.

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
Methyltrimethoxysilane	Dow IHG	TWA	7.5 ppm
N-(3-(Trimethoxysilyl)propyl)-1,2-ethanediamine	Dow IHG		See Further information
Further information: Skin Sensitizer			

3-Aminopropyltriethoxysilane	Dow IHG	TWA	0.5 mg/m3
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/m3 200 ppm
Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane	OSHA Z-1	TWA	0.1 mg/m3 , Tin
	ACGIH	TWA	0.1 mg/m3 , Tin
	Further information: A4: Not classifiable as a human carcinogen; Skin: Danger of cutaneous absorption		
	ACGIH	STEL	0.2 mg/m3 , Tin
	Further information: A4: Not classifiable as a human carcinogen; Skin: Danger of cutaneous absorption		
Ethanol	ACGIH	TWA	1,000 ppm
	Further information: URT irr: Upper Respiratory Tract irritation		
	ACGIH	STEL	1,000 ppm
	Further information: URT irr: Upper Respiratory Tract irritation		
	OSHA Z-1	TWA	1,900 mg/m3 1,000 ppm

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

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 chemical goggles.

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	paste
Color	milky white translucent
Odor	alcohol-like
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	Not applicable
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)	1.01
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.
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.

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.

Conditions to avoid: None known.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:

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

11. TOXICOLOGICAL INFORMATION

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

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:

Not classified based on available information.

Acute oral toxicity

Information for the Product:

Very low toxicity if swallowed. Swallowing may result in irritation of the mouth, throat, and gastrointestinal tract. 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:

Methyltrimethoxysilane

LD50, Rat, male and female, 11,685 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.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

Single dose oral LD50 has not been determined.

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.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

LD50, Rat, male and female, 2,295 mg/kg OPPTS 870.1100

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.

3-Aminopropyltriethoxysilane

LD50, Rat, female, 1,479 mg/kg

LD50, Rat, male, 2,665 mg/kg

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.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Single dose oral LD50 has not been determined.

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(2-ethyl-2,5-dimethylhexanoyl)oxy(dimethyl)stannane

LD50, Rat, male and female, 892 mg/kg OECD 401 or equivalent

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Single dose oral LD50 has not been determined.

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:

Methyltrimethoxysilane

LD50, Rabbit, male and female, > 9,500 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.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

Based on data from similar materials LD50, Rabbit, > 2,000 mg/kg

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.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

LD50, Rabbit, > 2,000 mg/kg 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.

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.

3-Aminopropyltriethoxysilane

Based on product testing: LD50, Rabbit, male and female, 4,041 mg/kg

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

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

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.

Bis(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

LD50, Rat, > 2,000 mg/kg

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

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:**

Brief exposure (minutes) is not likely to cause adverse effects. Vapor from heated material may cause respiratory irritation. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death. Excessive exposure may cause: Respiratory irritation Central nervous system depression Symptoms may include headache, dizziness and drowsiness, progressing to incoordination and unconsciousness. Effects may be delayed.

As product: The LC50 has not been determined.

Information for components:**Methyltrimethoxysilane**

LC50, Rat, male and female, 6 Hour, vapour, > 7605 ppm OECD Test Guideline 403

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.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

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.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

LC50, Rat, 4 Hour, dust/mist, 1.49 - 2.44 mg/l OECD Test Guideline 403

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.

3-Aminopropyltriethoxysilane

Based on product testing: LC50, Rat, male, 6 Hour, vapour, > 5 ppm No deaths occurred at this concentration.

Based on product testing: LC50, Rat, female, 6 Hour, vapour, > 16 ppm No deaths occurred at this concentration.

Based on product testing: LC50, Rat, male and female, 4 Hour, Aerosol, > 7.35 mg/l

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

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

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.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

As product: The LC50 has not been determined.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

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.

Skin corrosion/irritation

Causes skin irritation.

Information for the Product:

Based on information for component(s):

Brief contact may cause moderate skin irritation with local redness.

Information for components:

Methyltrimethoxysilane

Brief contact may cause slight skin irritation with local redness.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

Brief contact may cause slight skin irritation with local redness.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

Brief contact may cause moderate skin irritation with local redness.

Bis(trimethoxysilyl)hexane

Essentially nonirritating to skin.

3-Aminopropyltriethoxysilane

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

Methanol

Prolonged contact may cause slight skin irritation with local redness.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Brief contact may cause skin irritation with local redness.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

Brief contact may cause skin irritation with local redness.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Brief contact may cause skin irritation with local redness.

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:

Methyltrimethoxysilane

May cause slight temporary eye irritation.
Corneal injury is unlikely.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

May cause moderate eye irritation.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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.

3-Aminopropyltriethoxysilane

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

Vapor or mist may cause eye irritation.

Methanol

May cause eye irritation.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

May cause severe eye irritation.

May cause slight corneal injury.

May cause permanent impairment of vision.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

May cause slight eye irritation.

May cause slight temporary corneal injury.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

May cause severe eye irritation.

May cause slight corneal injury.

May cause permanent impairment of vision.

Sensitization

For skin sensitization:

May cause an allergic skin reaction.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:

A component in this mixture has been shown to be a skin sensitizer.

For respiratory sensitization:

No relevant data found.

Information for components:

Methyltrimethoxysilane

For skin sensitization:

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:
No relevant data found.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

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

For respiratory sensitization:
No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

Has caused allergic skin reactions when tested in guinea pigs.

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.

3-Aminopropyltriethoxysilane

Has caused 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.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Skin contact may cause an allergic skin reaction.

For respiratory sensitization:
No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Skin contact may cause an allergic skin reaction.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methyltrimethoxysilane

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

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

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

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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

Bis(trimethoxysilyl)hexane

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

3-Aminopropyltriethoxysilane

Material is corrosive. Material is not classified as a respiratory irritant; however, upper respiratory tract irritation or corrosivity may be expected.

Methanol

Causes damage to organs.

Target Organs: Eyes, Central nervous system

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory system

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

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

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory system

Aspiration Hazard

Not classified based on available information.

Information for the Product:

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

Information for components:**Methyltrimethoxysilane**

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.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

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

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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.

3-Aminopropyltriethoxysilane

Aspiration into the respiratory system may occur during ingestion or vomiting. Due to corrosivity, tissue damage or lung injury may occur.

Methanol

May be harmful if swallowed and enters airways.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

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

Bis(2-ethyl-2,5-dimethylhexanoyl)oxy(dimethyl)stannane

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

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

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

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)

Causes damage to organs (Bladder) through prolonged or repeated exposure if swallowed., May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Information for the Product:

Product test data not available.

Information for components:**Methyltrimethoxysilane**

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

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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

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.

3-Aminopropyltriethoxysilane

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

Liver.

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.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

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

Blood

Kidney

Liver

Immune system.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

No relevant data found.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methyltrimethoxysilane

No relevant data found.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and

Methyltrimethoxysilane

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

No relevant data found.

Bis(trimethoxysilyl)hexane

No relevant data found.

3-Aminopropyltriethoxysilane

Did not cause cancer in laboratory animals.

Methanol

Did not cause cancer in laboratory animals.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

No relevant data found.

Teratogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:**Methyltrimethoxysilane**

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

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

Did not cause birth defects in laboratory animals.

Bis(trimethoxysilyl)hexane

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

3-Aminopropyltriethoxysilane

Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Methanol

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

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

No relevant data found.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Methyltrimethoxysilane

In animal studies, did not interfere with reproduction.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

In animal studies, did not interfere with reproduction.

Bis(trimethoxysilyl)hexane

In animal studies, did not interfere with fertility.

3-Aminopropyltriethoxysilane

In animal studies, did not interfere with fertility.

Methanol

In animal studies, did not interfere with reproduction.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

No relevant data found.

Mutagenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:**Methyltrimethoxysilane**

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

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

In vitro genetic toxicity studies were positive.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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

Bis(trimethoxysilyl)hexane

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

3-Aminopropyltriethoxysilane

In vitro genetic toxicity studies were negative. 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.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

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

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

No relevant data found.

12. ECOLOGICAL INFORMATION

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

Toxicity**Methyltrimethoxysilane****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, *Oncorhynchus mykiss* (rainbow trout), flow-through, 96 Hour, > 110 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, *Daphnia magna* (Water flea), flow-through test, 48 Hour, > 122 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate inhibition, > 3.6 mg/l, OECD Test Guideline 201
No toxicity at the limit of solubility
NOEC, Pseudokirchneriella subcapitata (green algae), Static, 72 Hour, Growth rate inhibition, >= 3.6 mg/l, OECD Test Guideline 201

Toxicity to bacteria

EC10, activated sludge, Static, 3 Hour, Respiration rates., > 100 mg/l, OECD Test Guideline 209

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, >= 10 mg/l

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane**Acute toxicity to fish**

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine**Acute toxicity to fish**

Material is toxic to aquatic organisms (LC50/EC50/IC50 between 1 and 10 mg/L in the most sensitive species).

For the hydrolysis product(s)

LC50, zebra fish (Brachydanio rerio), 96 Hour, 597 mg/l

Acute toxicity to aquatic invertebrates

For the hydrolysis product(s)

EC50, Daphnia magna (Water flea), 48 Hour, 81 mg/l

Acute toxicity to algae/aquatic plants

For the hydrolysis product(s)

ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 8.8 mg/l

For the hydrolysis product(s)

NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate inhibition, 3.1 mg/l

Toxicity to bacteria

For the hydrolysis product(s)

EC50, Pseudomonas putida, 16 Hour, Growth inhibition, 67 mg/l

Chronic toxicity to aquatic invertebrates

For the hydrolysis product(s)

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, > 1 mg/l

Toxicity to Above Ground Organisms

Material is moderately toxic to birds on an acute basis (LD50 between 51 and 500 mg/kg).

Toxicity to soil-dwelling organisms

NOEC, Eisenia fetida (earthworms), 14 d, >= 1,000 mg/kg

Bis(trimethoxysilyl)hexane**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, 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

3-Aminopropyltriethoxysilane**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, Danio rerio (zebra fish), semi-static test, 96 Hour, > 934 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 48 Hour, 331 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 1,000 mg/l

NOEC, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, 1.3 mg/l

Toxicity to bacteria

EC50, Pseudomonas putida, 5.75 Hour, Respiration rates., 43 mg/l

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

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Acute toxicity to fish

No relevant data found.

Bis[2-ethyl-2,5-dimethylhexanoyl]oxy(dimethyl)stannane

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, Zebra fish (Danio/Brachydanio rerio), semi-static test, 96 Hour, > 100 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna, static test, 48 Hour, 39 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Algae (Scenedesmus subspicatus), Growth rate, 72 Hour, Growth rate, 7.6 mg/l, OECD Test Guideline 201 or Equivalent

For similar material(s):

NOEC, Algae (Scenedesmus subspicatus), Growth rate, 72 Hour, Growth rate, 1.1 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

For similar material(s):

EC50, Bacteria, 3 Hour, Respiration rates., 14 mg/l

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Acute toxicity to fish

No relevant data found.

Persistence and degradability

Methyltrimethoxysilane

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

Biodegradation: 54 %

Exposure time: 28 d

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

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

Biodegradability: 10-day Window: Fail

Biodegradation: 41.3 %

Exposure time: 28 d

Method: OECD Test Guideline 301B

Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 39 %

Exposure time: 28 d

Method: OECD Test Guideline 301A or Equivalent

Theoretical Oxygen Demand: 2.39 mg/mg Estimated.

Chemical Oxygen Demand: 1.76 mg/mg Estimated.

Biological oxygen demand (BOD)

Incubation Time	BOD
5 d	23 %
10 d	30 %
20 d	29 %

Stability in Water (1/2-life)

Hydrolysis, half-life, 0.025 Hour, pH 7

Photodegradation

Test Type: Half-life (indirect photolysis)

Sensitization: OH radicals

Atmospheric half-life: 0.088 d

Method: Estimated.

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

3-Aminopropyltriethoxysilane

Biodegradability: Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

Biodegradation: 67 %

Exposure time: 28 d

Method: OECD Test Guideline 301A or Equivalent

Stability in Water (1/2-life)

Hydrolysis, half-life, 8.5 Hour, pH 7, Half-life Temperature 24.7 °C

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.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Biodegradability: No relevant data found.

Bis(2-ethyl-2,5-dimethylhexanoyl)oxy(dimethyl)stannane

Biodegradability: For similar material(s): 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: 3 %

Exposure time: 28 d

Method: OECD Test Guideline 301F or Equivalent

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Biodegradability: No relevant data found.

Bioaccumulative potential**Methyltrimethoxysilane**

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

Partition coefficient: n-octanol/water(log Pow): -0.82 Estimated.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane

Bioaccumulation: No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

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

Partition coefficient: n-octanol/water(log Pow): < 3 estimated

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).

3-Aminopropyltriethoxysilane

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

Partition coefficient: n-octanol/water(log Pow): 1.7 at 20 °C Calculated.

Bioconcentration factor (BCF): 3.4 Cyprinus carpio (Carp) 56 d

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

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

Bioaccumulation: No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

Bioaccumulation: No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

Bioaccumulation: No relevant data found.

Mobility in soil**Methyltrimethoxysilane**

No relevant data found.

Aminopropyltriethoxysilane Rxn with Glycidoxypropyltrimethoxysilane and**Methyltrimethoxysilane**

No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.

Partition coefficient (Koc): > 5000 Estimated.

Bis(trimethoxysilyl)hexane

No relevant data found.

3-Aminopropyltriethoxysilane

No relevant data found.

Methanol

Partition coefficient (Koc): 0.44 Estimated.

N,N'-bis(3-(trimethoxysilyl)propyl)-1,2-ethanediamine

No relevant data found.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane

No relevant data found.

N,N-Bis(3-(Trimethylsiloxy)propyl)-1,2-ethanediamine

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

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

	Not regulated for transport
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):

Not regulated for 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

Respiratory or skin sensitisation
 Specific target organ toxicity (single or repeated exposure)
 Skin corrosion or irritation
 Serious eye damage or eye irritation

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
Siloxanes and silicones, dimethyl	63148-62-9
Methyltrimethoxysilane	1185-55-3
Aminopropyltriethoxysilane Rxn with	474530-85-3
Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane	
Dimethyldichlorosilane reaction with silica	68611-44-9
N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	1760-24-3
Bis(trimethoxysilyl)hexane	87135-01-1
Methanol	67-56-1

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	1	0

HMIS

Health	Flammability	Physical Hazard
3*	1	0

* = Chronic Effects (See Hazards Identification)

Revision

Identification Number: 4103251 / A001 / Issue Date: 02/01/2024 / Version: 18.0

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)
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

AllC - 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; TECl - 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.

THE DOW CHEMICAL COMPANY 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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