



# SAFETY DATA SHEET

THE DOW CHEMICAL COMPANY

**Product name: DOWSIL™ 3363 Insulating Glass Sealant Catalyst Black**

**Issue Date: 02/07/2023**

**Print Date: 02/08/2023**

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.

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## 1. IDENTIFICATION

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**Product name:** DOWSIL™ 3363 Insulating Glass Sealant Catalyst Black

**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

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## 2. HAZARDS IDENTIFICATION

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**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/ 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

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

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**Chemical nature:** Mixture of Methyl Siloxane and Organic Compound

This product is a mixture.

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

Methyltrimethoxysilane

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	1760-24-3	>= 4.0 - <= 6.0 %
Bis(trimethoxysilyl)hexane	87135-01-1	>= 2.9 - <= 4.2 %
3-Aminopropyltriethoxysilane	919-30-2	>= 0.7 - <= 1.1 %
Methanol	67-56-1	<= 0.9 %
Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane	68928-76-7	>= 0.05 - <= 0.19 %

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## **4. FIRST AID MEASURES**

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### **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:** Remove material from skin immediately by washing with soap and plenty of water. Remove contaminated clothing and shoes while washing. Seek medical attention if irritation or rash occurs. Wash clothing before reuse. Discard items which cannot be decontaminated, including leather articles 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:** If swallowed, seek medical attention. Do not induce vomiting unless directed to do so by medical personnel.

#### **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:** 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. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. No specific antidote.

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## 5. FIREFIGHTING MEASURES

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### Extinguishing media

**Suitable extinguishing media:** Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). 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<sub>x</sub>). 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..

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## 6. ACCIDENTAL RELEASE MEASURES

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**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
	OSHA P0	TWA	260 mg/m3 200 ppm
	Further information: X: Skin notation		
	OSHA P0	STEL	325 mg/m3 250 ppm
	Further information: X: Skin notation		
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		
	OSHA P0	TWA	0.1 mg/m3 , Tin
	Further information: X: Skin notation		
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/m <sup>3</sup> 1,000 ppm
	OSHA P0	TWA	1,900 mg/m <sup>3</sup> 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. If there are no applicable exposure limit requirements or guidelines, use only with adequate ventilation. Local exhaust ventilation may be necessary for some operations.

**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:** 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. For emergency conditions, use an approved positive-pressure self-contained breathing apparatus.

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**9. PHYSICAL AND CHEMICAL PROPERTIES**

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**Appearance**

Physical state	paste
Color	black
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)	1.05
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.
Liquid Density	1.05 g/cm <sup>3</sup>
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.

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## 10. STABILITY AND REACTIVITY

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**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.

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## 11. TOXICOLOGICAL INFORMATION

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*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.

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:**

**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, > 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.

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

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

**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:**

**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

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

LD50, Rat, > 2,000 mg/kg

**Acute inhalation toxicity**

**Information for the Product:**

Prolonged excessive exposure may cause adverse effects. Vapor from heated material may cause respiratory irritation. Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

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 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

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

As product: The LC50 has not been determined.

**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.

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

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.

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

May cause slight eye irritation.  
May cause slight temporary corneal injury.

**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:

Contains component(s) which have caused allergic skin sensitization in guinea pigs.

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**

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.

**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.

**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

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

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

**Aspiration Hazard**

Not classified based on available information.

**Information for the Product:**

Based on 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**

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

**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.

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

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

**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.

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

In animals, effects have been reported on the following organs:  
Blood  
Kidney  
Liver  
Immune system.

**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.

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

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.

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

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.

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

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.

**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.

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## 12. ECOLOGICAL INFORMATION

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*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), 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), 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), 72 Hour, Growth rate inhibition, >= 3.6 mg/l, OECD Test Guideline 201

##### **Toxicity to bacteria**

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

##### **Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna (Water flea), 28 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

**Acute toxicity to aquatic invertebrates**

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**Acute toxicity to algae/aquatic plants**

EC50, Selenastrum capricornutum (green algae), 72 Hour, > 100 mg/l

**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

**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

**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.

### 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

#### **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 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

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

**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.

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

No relevant data found.



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### 13. DISPOSAL CONSIDERATIONS

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**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 solely 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 MSDS SECTION: Composition Information. 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 solely of the waste generator. Do not re-use containers for any purpose.

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### 14. TRANSPORT INFORMATION

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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.

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## 15. REGULATORY INFORMATION

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### 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

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

### 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
Carbon black	1333-86-4
Methyltrimethoxysilane	1185-55-3
Aminopropyltriethoxysilane Rxn with	474530-85-3
Glycidoxypropyltrimethoxysilane and Methyltrimethoxysilane	
N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	1760-24-3
Bis(trimethoxysilyl)hexane	87135-01-1

### 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](http://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.

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## 16. OTHER INFORMATION

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### Hazard Rating System

#### NFPA

Health	Flammability	Instability
3	1	0

#### HMIS

Health	Flammability	Physical Hazard
3*	1	0

\* = Chronic Effects (See Hazards Identification)

### Revision

Identification Number: 99161030 / A001 / Issue Date: 02/07/2023 / Version: 10.0  
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 P0	USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)
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**

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

**Information Source and References**

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

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.

US