SAFETY DATA SHEET
DOW SILICONES CORPORATION

Product name: DOWSIL™ 1437 Industrial Sealant and Adhesive Clear

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

1. IDENTIFICATION

Product name: DOWSIL™ 1437 Industrial Sealant and Adhesive Clear

Recommended use of the chemical and restrictions on use
Identified uses: Adhesive, binding agents

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

Customer Information Number: 800-258-2436
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 1 800 424 9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Eye irritation - Category 2A
Skin sensitisation - Category 1
Reproductive toxicity - Category 2
Specific target organ toxicity - repeated exposure - Category 2 - Oral
Specific target organ toxicity - repeated exposure - Category 2 - Inhalation

Label elements
Hazard pictograms

Signal word: **WARNING!**

Hazards
May cause an allergic skin reaction.
Causes serious eye irritation.
Suspected of damaging fertility or the unborn child.
May cause damage to organs (Blood) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing must not be allowed out of the workplace.
Wear protective gloves/ protective clothing/ 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.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation or rash occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice and/or attention.
Wash contaminated clothing before reuse.

Storage
Store locked up.

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

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone elastomer
This product is a mixture.

Component	CASRN	Concentration

2-Butanone, O,O',O''-(methylsilylidyne)trioxime	22984-54-9	>= 2.0 - <= 6.0 %
Vinyltri (methylethylketoxime) silane	2224-33-1	< 1.7 %
N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	1760-24-3	>= 0.8 - < 1.3 %
Octamethyl Cyclotetrasiloxane	556-67-2	>= 0.07 - <= 0.31 %
Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane	68928-76-7	>= 0.15 - <= 0.25 %

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; consult a physician.

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.

Eye contact: Immediately flush eyes with water; remove contact lenses, if present, after the first 5 minutes, then continue flushing eyes for at least 15 minutes. Obtain medical attention without delay, preferably from an ophthalmologist. Suitable emergency eye wash facility should be immediately available.

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

Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Skin contact may aggravate preexisting dermatitis.

5. FIREFIGHTING MEASURES

Extinguishing media

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

Unsuitable extinguishing media: None known..

Special hazards arising from the substance or mixture

Hazardous combustion products: Carbon oxides. Silicon oxides. Nitrogen oxides (NOx).

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..
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: Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. 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. Dispose of saturated absorbent or cleaning materials appropriately, since spontaneous heating may occur.
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. Protect from moisture. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE

HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.
Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

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

Do not store with the following product types: Strong oxidizing agents.
Unsuitable materials for containers**:** Do not store in or use iron or steel containers.

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
N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine	Dow IHG		See Further information
	Further information: Skin Sensitizer		
Octamethyl Cyclotetrasiloxane	US WEEL	TWA	10 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		
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
Methyl Ethyl Ketoxime	Dow IHG	TWA	0.15 ppm
	Further information: Skin Sensitizer		
	US WEEL	TWA	10 ppm
	Further information: DSEN: Dermal Sensitization Notation		

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

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	15 mg/l	ACGIH BEI

after exposure ceases)

Exposure controls

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

Individual protection measures

Eye/face protection: Use chemical goggles.

Skin protection

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	paste
Color	Colorless to pale yellow
Odor	slight
Odor Threshold	No data available
pH	Not applicable
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)	1.04
Water solubility	No data available
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: Do not expose to temperatures above 212 °F/100 °C. Exposure to moisture

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:
Decomposition products can include and are not limited to: Formaldehyde. Methyl Ethyl Ketoxime. Methanol.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is 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 oral toxicity

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

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

Based on information for component(s):
LD50, Rat, > 5,000 mg/kg Estimated.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
LD50, Rat, male and female, 2,463 mg/kg OECD Test Guideline 401

Vinyltri (methylethylketoxime) silane
LD50, Rat, > 2,000 mg/kg

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
LD50, Rat, male and female, 2,295 mg/kg OPPTS 870.1100

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
LD50, Rat, male and female, 892 mg/kg OECD 401 or equivalent

Acute dermal toxicity
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:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
LD50, Rat, male and female, > 2,000 mg/kg OECD Test Guideline 402 No deaths occurred at this concentration.

Vinyltri (methylethylketoxime) silane
LD50, Rat, > 2,000 mg/kg

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
LD50, Rabbit, > 2,000 mg/kg No deaths occurred at this concentration.

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
LD50, Rat, > 2,000 mg/kg

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

As product: The LC50 has not been determined.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
The LC50 has not been determined.

Vinyltri (methylethylketoxime) silane
The LC50 has not been determined.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
LC50, Rat, 4 Hour, dust/mist, 1.49 - 2.44 mg/l OECD Test Guideline 403

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
As product: The LC50 has not been determined.

Skin corrosion/irritation
Based on information for component(s):
Prolonged contact may cause slight skin irritation with local redness.
May cause drying and flaking of the skin.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
Brief contact may cause slight skin irritation with local redness.

Vinyltri (methylethylketoxime) silane
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.

Octamethyl Cyclotetrasiloxane
Brief contact is essentially nonirritating to skin.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
Brief contact may cause skin irritation with local redness.

Serious eye damage/eye irritation
Based on information for component(s):
May cause severe eye irritation.
May cause corneal injury.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
May cause slight eye irritation.
May cause slight corneal injury.

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

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.

Octamethyl Cyclotetrasiloxane
Essentially nonirritating to eyes.

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
May cause slight eye irritation.
May cause slight temporary corneal injury.

Sensitization
For skin sensitization:
Contains component(s) which have caused allergic skin sensitization in guinea pigs.
Contains component(s) which have demonstrated the potential for contact allergy in mice.

For respiratory sensitization:
No relevant information found.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
For skin sensitization:
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Vinyltri (methylethylketoxime) silane
Has caused 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.

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

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

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Vinyltri (methylethylketoxime) silane
Available data are inadequate to determine single exposure specific target organ toxicity.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
Available data are inadequate to determine single exposure specific target organ toxicity.

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
Available data are inadequate to determine single exposure specific target organ toxicity.

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

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
Based on available information, aspiration hazard could not be determined.

Vinyltri (methylethylketoxime) silane
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.

Octamethyl Cyclotetrasiloxane
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)
Contains component(s) which have been reported to cause effects on the following organs in animals:
Blood.
Respiratory tract.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
For similar material(s):
In animals, effects have been reported on the following organs:
Blood

Vinyltri (methylethylketoxime) silane
In animals, effects have been reported on the following organs:
Blood.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
In animals, effects have been reported on the following organs:
Respiratory tract.

Octamethyl Cyclotetrasiloxane
In animals, effects have been reported on the following organs:
Kidney.
Liver.
Respiratory tract.
Female reproductive organs.

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
During use of the material, small amounts of methylethylketoxime (MEKO) will be released. Rodents exposed to chronic MEKO inhalation throughout their lifetimes showed significant increases in liver tumour rates.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
No relevant data found.

Vinyltri (methylethylketoxime) silane
No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
No relevant data found.

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

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

No relevant data found.

Teratogenicity
Contains component(s) which did not cause birth defects or any other fetal effects in lab animals.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Vinyltri (methylethylketoxime) silane
No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
Did not cause birth defects in laboratory animals.

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
No relevant data found.

Reproductive toxicity
In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Contains component(s) which have interfered with fertility in animal studies.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
For similar material(s): In animal studies, did not interfere with reproduction.

Vinyltri (methylethylketoxime) silane
No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
In animal studies, did not interfere with reproduction.

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

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
No relevant data found.

Mutagenicity
In vitro genetic toxicity studies were negative for component(s) tested. Genetic toxicity studies in animals were negative for component(s) tested.

Information for components:

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
For similar material(s): In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Vinyltri (methylethylketoxime) silane
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

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

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.

12. ECOLOGICAL INFORMATION

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

Toxicity

2-Butanone, O,O',O''-(methylsilylidyne)trioxime

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).
For similar material(s):
LC50, Fathead minnow (Pimephales promelas), Static, 96 Hour, 843 mg/l, OECD Test Guideline 203
For similar material(s):
LC50, Oryzias latipes (Japanese medaka), Static, 96 Hour, > 100 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates
For similar material(s):
EC50, Daphnia magna (Water flea), static test, 48 Hour, 201 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
For similar material(s):
NOEC, Selenastrum capricornutum (green algae), Static, 72 Hour, Growth rate, 2.6 mg/l, OECD Test Guideline 201
For similar material(s):
EC50, Selenastrum capricornutum (green algae), Static, 72 Hour, Growth rate, 16 mg/l, OECD Test Guideline 201

Toxicity to bacteria
For similar material(s):
EC50, activated sludge, 3 Hour, Respiration rates., > 390.45 mg/l, OECD Test Guideline 209

Chronic toxicity to fish

For similar material(s):
NOEC, Oryzias latipes (Orange-red killifish), flow-through test, 14 d, mortality, 50 mg/l

Chronic toxicity to aquatic invertebrates
For similar material(s):
NOEC, Daphnia magna, semi-static test, 21 d, number of offspring, > 100 mg/l

Vinyltri (methylethylketoxime) silane

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, > 120 mg/l, OECD Test Guideline 203
LC50, Oryzias latipes (Orange-red killifish), 96 Hour, > 100 mg/l, OECD Test Guideline 203

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

Octamethyl Cyclotetrasiloxane

Acute toxicity to fish
Not expected to be acutely toxic to aquatic organisms.
No toxicity at the limit of solubility
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l
No toxicity at the limit of solubility

LC50, Cyprinodon variegatus (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

Acute toxicity to aquatic invertebrates
No toxicity at the limit of solubility
EC50, Mysidopsis bahia (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l
No toxicity at the limit of solubility
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

Acute toxicity to algae/aquatic plants
No toxicity at the limit of solubility
ErC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, > 0.022 mg/l

Chronic toxicity to fish
No toxicity at the limit of solubility
NOEC, Oncorhynchus mykiss (rainbow trout), 93 d, >= 0.0044 mg/l

Chronic toxicity to aquatic invertebrates
No toxicity at the limit of solubility
NOEC, Daphnia magna (Water flea), 21 d, >= 0.0079 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

2-Butanone, O,O',O''-(methylsilylidyne)trioxime

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: 20 - 28 %
Exposure time: 28 d
Method: OECD Test Guideline 301C or Equivalent

Vinyltri (methylethylketoxime) silane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Fail
Biodegradation: 0 %
Exposure time: 28 d
Method: OECD Test Guideline 301A

Stability in Water (1/2-life)
Hydrolysis, DT50, < 1 min, Half-life Temperature 2 °C, OECD Test Guideline 111

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.

Octamethyl Cyclotetrasiloxane

Biodegradability: Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.
10-day Window: Not applicable
Biodegradation: 3.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in Water (1/2-life)
Hydrolysis, DT50, 69.3 - 144 Hour, pH 7, Half-life Temperature 24.6 °C, OECD Test Guideline 111

Photodegradation
Atmospheric half-life: 16 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

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 1.69 Estimated by Structure-Activity Relationship (SAR).

Vinyltri (methylethylketoxime) silane
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

Octamethyl Cyclotetrasiloxane
Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).
Partition coefficient: n-octanol/water(log Pow): 6.49 Measured
Bioconcentration factor (BCF): 12,400 Pimephales promelas (fathead minnow) Measured

Bis[(2-ethyl-2,5-dimethylhexanoyl)oxy](dimethyl)stannane
Bioaccumulation: No relevant data found.

Mobility in soil

2-Butanone, O,O',O''-(methylsilylidyne)trioxime
No relevant data found.

Vinyltri (methylethylketoxime) silane
No relevant data found.

N-(3-(Trimethoxysilyl) propyl)-1,2-ethanediamine
Expected to be relatively immobile in soil (Koc > 5000).
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.

Octamethyl Cyclotetrasiloxane
Expected to be relatively immobile in soil (Koc > 5000).
Partition coefficient (Koc): 16596 OECD Test Guideline 106

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

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 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 Section10 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.

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
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)
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 Worker and Community Right-To-Know Act:
The following chemicals are listed because of the additional requirements of Pennsylvania law:

Components	CASRN
Polydimethylsiloxane hydroxy-terminated	70131-67-8
Siloxanes and silicones, dimethyl	63148-62-9
Silicon dioxide	7631-86-9
2-Butanone, O,O',O''-(methylsilylidyne)trioxime	22984-54-9

California Prop. 65
WARNING: This product can expose you to chemicals including Hexane, 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
2*	1	0

* = Chronic Effects (See Hazards Identification)

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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
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

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

Information Source and References

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

DOW SILICONES CORPORATION urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown

above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
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