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SAFETY DATA SHEET
DOW SILICONES CORPORATION

Product name: DOWSIL™ 236 Dispersion

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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™ 236 Dispersion

Recommended use of the chemical and restrictions on use
Identified uses: Anti-set off and adhesive agents Coatings

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

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

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

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with the OSHA Hazard Communication Standard (29 CFR 1910.1200)
Flammable liquids - Category 2
Skin irritation - Category 2
Serious eye damage - Category 1
Skin sensitisation - Category 1
Carcinogenicity - Category 1B
Specific target organ toxicity - single exposure - Category 1 - Inhalation
Specific target organ toxicity - single exposure - Category 3
Specific target organ toxicity - repeated exposure - Category 2

Label elements
Hazard pictograms

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Signal word: **DANGER!**

Hazards
Highly flammable liquid and vapour.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye damage.
May cause drowsiness or dizziness.
May cause cancer.
Causes damage to organs (Upper respiratory tract) if inhaled.
May cause damage to organs (Blood) through prolonged or repeated exposure.

Precautionary statements

Prevention
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
Use explosion-proof electrical/ ventilating/ lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Do not breathe spray.
Wash skin thoroughly after handling.
Do not eat, drink or smoke when using this product.
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 and/or face protection.

Response
IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER/ doctor if you feel unwell.
IF 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.
IF exposed: Call a POISON CENTER or doctor/ physician.
If skin irritation or rash occurs: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.

Storage
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

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

Other hazards
Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Silicone in solvent
This product is a mixture.

Component	CASRN	Concentration
Titanium dioxide	13463-67-7	>= 24.0 - <= 36.0 %
Distillates, petroleum, light distillate hydrotreating process, low-boiling	68410-97-9	>= 24.0 - <= 36.0 %
Vinyltri (methylethylketoxime) silane	2224-33-1	>= 3.0 - <= 4.0 %
Methyl Ethyl Ketoxime	96-29-7	<= 3.0 %
Silicon dioxide	7631-86-9	>= 1.4 - <= 2.0 %

4. FIRST AID MEASURES

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

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

Skin contact: 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: 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.

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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. May cause drowsiness or dizziness. May cause cancer. Causes damage to organs if inhaled. May cause damage to organs through prolonged or repeated exposure.

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. No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient. Repeated excessive exposure may aggravate preexisting lung disease.

5. FIREFIGHTING MEASURES

Extinguishing media

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

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

Special hazards arising from the substance or mixture

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

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

Advice for firefighters

Fire Fighting Procedures: Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage.. Use water spray to cool fire exposed containers and fire affected zone until fire is out and danger of reignition has passed.. Do not use a solid water stream as it may scatter and spread fire..
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. 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

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

Environmental precautions: Do not release the product to the aquatic environment above defined regulatory levels Prevent further leakage or spillage if safe to do so. Prevent spreading over a wide area (e.g. by containment or oil barriers). Retain and dispose of contaminated wash water. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Non-sparking tools should be used. Soak up with inert absorbent material. Suppress (knock down) gases/vapours/mists with a water spray jet. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container. 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 breathe vapours or spray mist. Do not swallow. Do not get in eyes. Keep container tightly closed. Protect from moisture. Keep away from heat and sources of ignition. Take precautionary measures against static discharges. Take care to prevent spills, waste and minimize release to the environment. Non-sparking tools should be used. Handle in accordance with good industrial hygiene and safety practice.
CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied.
Use with local exhaust ventilation. Use only in an area equipped with explosion proof exhaust ventilation. Ensure all equipment is electrically grounded before beginning transfer operations. This material can accumulate static charge due to its inherent physical properties and can therefore cause an electrical ignition source to vapors. In order to prevent a fire hazard, as bonding and grounding may be insufficient to remove static electricity, it isnecessary to provide an inert gas purge before beginning transfer operations. Restrict flow velocity in order to reduce the accumulation of static electricity. Ground and bond container and receiving equipment.

Conditions for safe storage: Keep in properly labelled containers. Store locked up. Keep tightly closed. Keep in a cool, well-ventilated place. Store in accordance with the particular national regulations. Keep away from heat and sources of ignition.

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

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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
Titanium dioxide	Dow IHG	TWA	2.4 mg/m3
	OSHA Z-1	TWA total dust	15 mg/m3
	ACGIH	TWA	2.5 mg/m3
	Further information: A3: Confirmed animal carcinogen with unknown relevance to humans		
Distillates, petroleum, light distillate hydrotreating process, low-boiling	OSHA Z-1	TWA	2,000 mg/m3 500 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		
Silicon dioxide	Dow IHG	TWA Respirable dust	2 mg/m3
	Dow IHG	TWA Total dust	6 mg/m3
	OSHA Z-3	TWA Dust	20 Million particles per cubic foot, Silica
	OSHA Z-3	TWA Dust	80 mg/m3 / %SiO2, Silica
	OSHA CARC	PEL respirable	0.05 mg/m3
	Further information: OSHA specifically regulated carcinogen		

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

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: Chlorinated polyethylene. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Polyethylene. Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Butyl rubber. 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.

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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, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator.
The following should be effective types of air-purifying respirators: Organic vapor cartridge with a particulate pre-filter.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	liquid
Color	white
Odor	Solvent
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)	> 35 °C (> 95 °F)
Flash point	**Pensky-Martens closed cup** 12.2 °C (54.0 °F)
Evaporation Rate (Butyl Acetate = 1)	No data available
Flammability (solid, gas)	Not applicable
Lower explosion limit	No data available
Upper explosion limit	No data available
Vapor Pressure	No data available
Relative Vapor Density (air = 1)	No data available
Relative Density (water = 1)	1.08
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Kinematic Viscosity	675 cSt at 25 °C (77 °F)
Explosive properties	Not explosive
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Molecular weight	No data available
Particle size	Not applicable

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

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10. STABILITY AND REACTIVITY

Reactivity: Not classified as a reactivity hazard.

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: Can react with strong oxidizing agents. When heated to temperatures above 150 °C (300 °F) in the presence of air, trace quantities of formaldehyde may be released. Adequate ventilation is required. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

Conditions to avoid: Do not expose to temperatures above 212 °F/100 °C. Avoid static discharge. Heat, flames and sparks. Exposure to moisture

Incompatible materials: Avoid contact with oxidizing materials.

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

11. TOXICOLOGICAL INFORMATION

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

Information on likely routes of exposure
Inhalation, Eye contact, Skin contact, Ingestion.

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

Acute Toxicity Endpoints:
Not classified based on available information.

Acute oral toxicity

Information for the Product:

Low toxicity if swallowed. Small amounts swallowed incidentally as a result of normal handling operations are not likely to cause injury; however, swallowing larger amounts may cause injury.

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

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

Information for components:

Titanium dioxide
LD50, Rat, > 10,000 mg/kg

Distillates, petroleum, light distillate hydrotreating process, low-boiling

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For similar material(s): LD50, Rat, male and female, > 5,000 mg/kg OECD 401 or equivalent No deaths occurred at this concentration.

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

Methyl Ethyl Ketoxime
LD50, 100 mg/kg

Silicon dioxide
LD50, Rat, > 5,000 mg/kg

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

Information for components:

Titanium dioxide
LD50, Rabbit, 10,000 mg/kg

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s): LD50, Rabbit, male and female, > 2,000 mg/kg OECD 402 or equivalent No deaths occurred at this concentration.

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

Methyl Ethyl Ketoxime
LD50, Rabbit, male and female, 1,100 mg/kg OECD Test Guideline 402

Silicon dioxide
LD50, Rabbit, > 5,000 mg/kg

Acute inhalation toxicity

Information for the Product:

Brief exposure (minutes) is not likely to cause adverse effects. Excessive exposure may cause irritation to upper respiratory tract (nose and throat). Excessive exposure may cause: lung effects Central nervous system depression Observations in animals include: Anesthetic or narcotic effects.

As product: The LC50 has not been determined.

Information for components:

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Titanium dioxide
LC50, Rat, male, 4 Hour, dust/mist, > 6.82 mg/l No deaths occurred at this concentration.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
Brief exposure (minutes) is not likely to cause adverse effects. Excessive exposure may cause: lung effects Central nervous system depression

For similar material(s): LC50, Rat, 4 Hour, vapour, > 5.61 mg/l

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

Methyl Ethyl Ketoxime
LC50, Rat, male and female, 4 Hour, dust/mist, > 4.83 mg/l OECD Test Guideline 403

Silicon dioxide
Maximum attainable concentration. LC50, Rat, 4 Hour, dust/mist, > 2.08 mg/l No deaths occurred at this concentration.

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

Information for components:

Titanium dioxide
Essentially nonirritating to skin.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s):
Brief contact may cause severe skin irritation with pain and local redness.

Vinyltri (methylethylketoxime) silane
Brief contact may cause slight skin irritation with local redness.

Methyl Ethyl Ketoxime
Brief contact may cause skin irritation with local redness.
Prolonged contact may cause skin irritation with local redness.
May cause more severe response if skin is abraded (scratched or cut).

Silicon dioxide
Brief contact is essentially nonirritating to skin.
May cause skin irritation due to mechanical abrasion.
May cause drying and flaking of the skin.

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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:

Titanium dioxide
Solid or dust may cause irritation due to mechanical action.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s):
May cause slight temporary eye irritation.
Corneal injury is unlikely.

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

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

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

Sensitization

For skin sensitization:
May cause an allergic skin reaction.

For respiratory sensitization:
Not classified based on available information.

Information for the Product:

Based on information for component(s):
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:

Titanium dioxide
Did not demonstrate the potential for contact allergy in mice.
Did not cause allergic skin reactions when tested in guinea pigs.

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For respiratory sensitization:
No relevant data found.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For skin sensitization:
For similar material(s):
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Vinyltri (methylethylketoxime) silane
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Methyl Ethyl Ketoxime
Has caused allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

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

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause drowsiness or dizziness., Causes damage to organs (Upper respiratory tract) if inhaled.

Information for the Product:

Product test data not available.

Information for components:

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

Distillates, petroleum, light distillate hydrotreating process, low-boiling
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Central nervous system

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

Methyl Ethyl Ketoxime
May cause drowsiness or dizziness.
Route of Exposure: Inhalation
Target Organs: Central nervous system

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Causes damage to organs.
Route of Exposure: Inhalation
Target Organs: Upper respiratory tract

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

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:

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

Distillates, petroleum, light distillate hydrotreating process, low-boiling
May be fatal if swallowed and enters airways.

Vinyltri (methylethylketoxime) silane
Based on available information, aspiration hazard could not be determined.

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

Silicon dioxide
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)

May cause damage to organs (Blood) through prolonged or repeated exposure.

Information for the Product:

Product test data not available.

Information for components:

Titanium dioxide
Repeated excessive inhalation exposures to dusts may cause respiratory effects.
In animals, effects have been reported on the following organs:
Lung.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s):
Kidney effects have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

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

Methyl Ethyl Ketoxime
In animals, effects have been reported on the following organs:
Blood.
Eye.
Respiratory tract.
Observations in animals include:
May cause central nervous system depression.

Silicon dioxide
No relevant data found.

Carcinogenicity

May cause cancer.

Information for the Product:

Product test data not available.

Information for components:

Titanium dioxide
Lung fibrosis and tumors have been observed in rats exposed to titanium dioxide in two lifetime inhalation studies. Effects are believed to be due to overloading of the normal respiratory clearance mechanisms caused by the extreme study conditions. Workers exposed to titanium dioxide in the workplace have not shown an unusual incidence of chronic respiratory disease or lung cancer. Titaniumdioxide was not carcinogenic in laboratory animals in lifetime feeding studies.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
Kidney effects and/or tumors have been observed in male rats. These effects are believed to be species specific and unlikely to occur in humans.

Vinyltri (methylethylketoxime) silane
No relevant data found.

Methyl Ethyl Ketoxime
Has caused cancer in laboratory animals.

Silicon dioxide
No relevant data found.

Carcinogenicity

Component	List	Classification
Titanium dioxide	IARC	Group 2B: Possibly carcinogenic to humans
	ACGIH	A3: Confirmed animal carcinogen with unknown relevance to humans.
Distillates, petroleum, light	IARC	Group 2B: Possibly carcinogenic to

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distillate hydrotreating process, low-boiling		humans
Silicon dioxide	OSHA CARC	OSHA specifically regulated carcinogen

Teratogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Titanium dioxide
No relevant data found.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s): Did not cause birth defects or any other fetal effects in laboratory animals.

Vinyltri (methylethylketoxime) silane
No relevant data found.

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

Silicon dioxide
No relevant data found.

Reproductive toxicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

Titanium dioxide
No relevant data found.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
For similar material(s): In animal studies, did not interfere with reproduction.

Vinyltri (methylethylketoxime) silane
No relevant data found.

Methyl Ethyl Ketoxime
In animal studies, did not interfere with reproduction.

Silicon dioxide
No relevant data found.

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Mutagenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:

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

Distillates, petroleum, light distillate hydrotreating process, low-boiling
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.

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

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

12. ECOLOGICAL INFORMATION

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

Toxicity

Titanium dioxide

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).
NOEC, Leuciscus idus (Golden orfe), static test, 48 Hour, > 1,000 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EC50, Skeletonema costatum (marine diatom), 72 Hour, > 10,000 mg/l

Toxicity to bacteria
EC50, 3 Hour, > 1,000 mg/l, OECD Test Guideline 209

Distillates, petroleum, light distillate hydrotreating process, low-boiling

Acute toxicity to fish

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Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LL50, Oncorhynchus mykiss (rainbow trout), semi-static test, 96 Hour, 10 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EL50, Daphnia magna (Water flea), static test, 48 Hour, 4.5 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants
For similar material(s):
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 3.1 mg/l, OECD Test Guideline 201
For similar material(s):
NOELR, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 0.5 mg/l, OECD Test Guideline 201

Chronic toxicity to fish
For similar material(s):
NOELR, Pimephales promelas (fathead minnow), semi-static test, 14 d, mortality, 2.6 mg/l

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
NOELR, Daphnia magna (Water flea), semi-static test, 21 d, number of offspring, 2.6 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

Methyl Ethyl Ketoxime

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).
LC50, Lepomis macrochirus (Bluegill sunfish), static test, 96 Hour, 48 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), static test, 48 Hour, 201 mg/l, Method Not Specified.

Acute toxicity to algae/aquatic plants
EC50, Scenedesmus capricornutum (fresh water algae), static test, 72 Hour, Growth rate, 11.8 mg/l, OECD Test Guideline 201 or Equivalent
NOEC, Scenedesmus capricornutum (fresh water algae), 72 Hour, 2.56 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria
EC50, Bacteria, 17 Hour, 281 mg/l

Chronic toxicity to fish
NOEC, Oryzias latipes (Orange-red killifish), 14 d, survival, 50 mg/l

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Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), 21 d, number of offspring, > 100 mg/l

Silicon dioxide

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), 96 Hour, 5,000 - 10,000 mg/l

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), 24 Hour, > 1,000 mg/l

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Biomass, 440 mg/l

Persistence and degradability

Titanium dioxide
Biodegradability: Biodegradation is not applicable.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
Biodegradability: No relevant data found.

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

Methyl Ethyl Ketoxime
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. Material has inherent, primary biodegradability according to OECD test (s) guidelines (reaches > 20% biodegradation in OECD test(s).
10-day Window: Not applicable
Biodegradation: 70 %
Exposure time: 14 d
Method: OECD Test Guideline 302B or Equivalent

Theoretical Oxygen Demand: 2.57 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 7.211 d
Method: Estimated.

Silicon dioxide

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Biodegradability: Biodegradability is not applicable to inorganic substances.

Bioaccumulative potential

Titanium dioxide
Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Vinyltri (methylethylketoxime) silane
Bioaccumulation: No relevant data found.

Methyl Ethyl Ketoxime
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.63 Measured
Bioconcentration factor (BCF): <= 5.8 Cyprinus carpio (Carp) 42 d Measured

Silicon dioxide
Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 0.53
Bioconcentration factor (BCF): 3.16

Mobility in soil

Titanium dioxide
No data available.

Distillates, petroleum, light distillate hydrotreating process, low-boiling
No relevant data found.

Vinyltri (methylethylketoxime) silane
No relevant data found.

Methyl Ethyl Ketoxime
Partition coefficient (Koc): 130 Estimated.

Silicon dioxide
Partition coefficient (Koc): 21.73

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

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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

Proper shipping name	Flammable liquids, n.o.s.(Distillates, petroleum, light distillate hydrotreating process, low-boiling)
UN number	UN 1993
Class	3
Packing group	II

Classification for SEA transport (IMO-IMDG):

Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Distillates, petroleum, light distillate hydrotreating process, low-boiling)
UN number	UN 1993
Class	3
Packing group	II
Marine pollutant	Distillates, petroleum, light distillate hydrotreating process, low-boiling
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code	Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Proper shipping name	Flammable liquid, n.o.s.(Distillates, petroleum, light distillate hydrotreating process, low-boiling)
UN number	UN 1993
Class	3
Packing group	II

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

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
Flammable (gases, aerosols, liquids, or solids)
Hazard not otherwise classified (physical hazards)
Respiratory or skin sensitisation
Carcinogenicity
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
Polydimethylsiloxane hydroxy-terminated	70131-67-8
Titanium dioxide	13463-67-7
Distillates, petroleum, light distillate hydrotreating process, low-boiling	68410-97-9
Vinyltri (methylethylketoxime) silane	2224-33-1
Methyl Ethyl Ketoxime	96-29-7
Silicon dioxide	7631-86-9

California Prop. 65
WARNING: This product can expose you to chemicals including Titanium dioxide, Silicon dioxide, Ethylbenzene, Benzene, which is/are known to the State of California to cause cancer, and Benzene, Toluene, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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

16. OTHER INFORMATION

Hazard Rating System
NFPA

Health	Flammability	Instability
2	3	0

HMIS

Health	Flammability	Physical Hazard
4*	4	0

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* = Chronic Effects (See Hazards Identification)

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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)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA CARC	OSHA Specifically Regulated Chemicals/Carcinogens
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3	USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
PEL	Permissible exposure limit (PEL)
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

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

Information Source and References

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

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