



SAFETY DATA SHEET

DOW CHEMICAL PHILIPPINES, INC.

Product name: DOWSIL™ 3-1965 Conformal Coating

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DOW CHEMICAL PHILIPPINES, INC. 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. PRODUCT AND COMPANY IDENTIFICATION

Product name: DOWSIL™ 3-1965 Conformal Coating

Recommended use of the chemical and restrictions on use

Identified uses: Corrosion inhibitors Electrical industry and electronics

COMPANY IDENTIFICATION

DOW CHEMICAL PHILIPPINES, INC.
CAA ROAD, AGUILAR AVENUE
PAMPLONA
1740 LAS PINAS CITY
PHILIPPINES

Customer Information Number:

+63 2 871 0731 TO 37
SDSQuestion@dow.com
+63 2 874 0178

Fax:

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: (+63) 2-8-551 0483

Local Emergency Contact: (+63) 2-8-551 0483

2. HAZARDS IDENTIFICATION

GHS Classification

Flammable liquids - Category 2
Reproductive toxicity - Category 1B

GHS label elements

Hazard pictograms



Signal word: **DANGER!**

Hazard statements

H225 Highly flammable liquid and vapour.
H360 May damage fertility or the unborn child.

Precautionary statements**Prevention**

P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
P233 Keep container tightly closed.
P240 Ground/bond container and receiving equipment.
P241 Use explosion-proof electrical/ ventilating/ lighting equipment.
P242 Use only non-sparking tools.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing spray.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish.

Storage

P403 + P235 Store in a well-ventilated place. Keep cool.
P405 Store locked up.

Disposal

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

Static-accumulating flammable liquid.

3. COMPOSITION/INFORMATION ON INGREDIENTS

This product is a mixture.

Component	CASRN	Concentration
Methyltrimethoxysilane	1185-55-3	>= 6.0 - <= 16.0 %
Octamethyltrisiloxane	107-51-7	>= 8.0 - <= 10.0 %

Diisopropoxydi(ethoxyacetoacetyl titanate)	27858-32-8	>= 0.6 - <= 2.7 %
Methanol	67-56-1	>= 0.1 - <= 0.41 %
Dimethyldimethoxysilane	1112-39-6	>= 0.05 - <= 0.19 %

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: Wash off with plenty of water.

Eye contact: Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist. Suitable emergency eye wash facility should be available in work area.

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

Most important symptoms and effects, both acute and delayed:

May damage fertility or the unborn child.

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.

5. FIREFIGHTING MEASURES

Extinguishing media

Suitable extinguishing media: Alcohol-resistant foam. Carbon dioxide (CO₂). 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: Silicon oxides. Formaldehyde. Carbon oxides. Metal oxides.

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.. Fire burns more vigorously than would be expected.. 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.. 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..

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: Discharge into the environment must be avoided. 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. Avoid contact with eyes. Do not swallow. Keep container tightly closed. 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 is necessary 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: 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	US WEEL	TWA	10 ppm
	US WEEL	STEL	55 mg/m3
	Dow IHG	TWA	7.5 ppm
Octamethyltrisiloxane	Dow IHG	TWA	20 ppm
Methanol	ACGIH	TWA	200 ppm
	Further information: Skin: Danger of cutaneous absorption		
	ACGIH	STEL	250 ppm
	Further information: Skin: Danger of cutaneous absorption		
	PH OEL	TWA	260 mg/m3 200 ppm
Dimethyldimethoxysilane	Dow IHG	TWA	2.4 ppm
Isopropanol	ACGIH	TWA	200 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	400 ppm
	Further information: A4: Not classifiable as a human carcinogen		
	PH OEL	TWA	980 mg/m3 400 ppm

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

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
Isopropanol	67-63-0	Acetone	Urine	End of shift at end of workweek	40 mg/l	ACGIH BEI

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 when prolonged or frequently repeated contact could occur. 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: Wear clean, body-covering clothing.

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	liquid
Color	Straw-coloured
Odor	slight
Odor Threshold	No data available

pH	Not applicable, substance/mixture is non-soluble (in water)
Melting point/ range	No data available
Freezing point	No data available
Boiling point (760 mmHg)	> 100 °C
Flash point	Seta closed cup 20 °C
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)	0.99
Water solubility	insoluble
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Dynamic Viscosity	150 mPa.s
Kinematic Viscosity	No data available
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.

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. Vapours may form explosive mixture with air. Highly flammable liquid and vapour.

Conditions to avoid: Avoid static discharge. Heat, flames and sparks.

Incompatible materials: Avoid contact with oxidizing materials.

Hazardous decomposition products:

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

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data are 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:**

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

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

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

Information for components:**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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

LD50, Rat, male, 23,020 mg/kg OECD 401 or equivalent

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

ALD - Approximate Lethal Dose, Humans, 340 mg/kg Estimated.

ALD - Approximate Lethal Dose, Humans, 29 - 237 ml Estimated.

Dimethyldimethoxysilane

LD50, Rat, > 2,000 - 5,000 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.

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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s): LD50, Rabbit, 12,870 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

Dimethyldimethoxysilane

The dermal LD50 has not been determined.

This substance may hydrolyze to release Methanol. Effects of methanol are the same as observed via oral and inhalation exposure and include central nervous system (CNS) depression, visual impairment up to blindness, metabolic acidosis, with effects on organ systems such as liver, kidneys and heart, even death.

Acute inhalation toxicity

Information for the Product:

No adverse effects are anticipated from single exposure to vapor. Vapor from heated material may cause respiratory irritation.

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.

Octamethyltrisiloxane

LC50, Rat, male and female, 4 Hour, vapour, > 22.6 mg/l No deaths occurred at this concentration.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s): LC50, Rat, male and female, 4 Hour, vapour, > 198.65 mg/l No deaths occurred at this concentration.

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

Dimethyldimethoxysilane

LC50, Rat, 4 Hour, vapour, > 4.7 mg/l

This substance may hydrolyze to release Methanol. Inhalation of methanol may cause effects ranging from headache, narcosis and visual impairment to metabolic acidosis, blindness, and even death.

Skin corrosion/irritation

Not classified based on available information.

Information for the Product:

Based on information for component(s):
Brief contact is essentially nonirritating to skin.

Information for components:

Methyltrimethoxysilane

Brief contact may cause slight skin irritation with local redness.

Octamethyltrisiloxane

Brief contact is essentially nonirritating to skin.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s):
Brief contact is essentially nonirritating to skin.

Methanol

Prolonged contact may cause slight skin irritation with local redness.

Dimethyldimethoxysilane

Brief contact is essentially nonirritating to skin.

Serious eye damage/eye irritation

Not classified based on available information.

Information for the Product:

Based on information for component(s):

May cause slight eye irritation.

May cause slight corneal injury.

Information for components:

Methyltrimethoxysilane

May cause slight temporary eye irritation.

Corneal injury is unlikely.

Octamethyltrisiloxane

May cause slight temporary eye irritation.

Corneal injury is unlikely.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s):

May cause moderate eye irritation.

May cause slight corneal injury.

Methanol

May cause eye irritation.

Dimethyldimethoxysilane

Essentially nonirritating to eyes.

Sensitization

For skin sensitization:

Not classified based on available information.

For respiratory sensitization:

Not classified based on available information.

Information for the Product:

For skin sensitization:

Contains component(s) which did not cause allergic skin sensitization in guinea pigs.

For respiratory sensitization:

No relevant data found.

Information for components:

Methyltrimethoxysilane

For skin sensitization:

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Octamethyltrisiloxane

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

For respiratory sensitization:

No relevant data found.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s):

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:

No relevant data found.

Methanol

For skin sensitization:

No relevant data found.

For respiratory sensitization:

No relevant data found.

Dimethyldimethoxysilane

For similar material(s):

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)

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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

May cause drowsiness or dizziness.

Route of Exposure: Inhalation

Target Organs: Central nervous system

Methanol

Causes damage to organs.

Target Organs: Eyes, Central nervous system

Dimethyldimethoxysilane

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:

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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

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

Methanol

May be harmful if swallowed and enters airways.

Dimethyldimethoxysilane

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)

Not classified based on available information.

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.

Octamethyltrisiloxane

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

Liver

This material contains octamethyltrisiloxane (L3). Repeated inhalation exposure in rats to L3 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.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s):

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

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.

Dimethyldimethoxysilane

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

Liver

Male reproductive organs.

This material contains dimethyldimethoxysilane. Repeated exposure in rats to dimethyldimethoxysilane 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.

Carcinogenicity

Not classified based on available information.

Information for the Product:

Product test data not available.

Information for components:**Methyltrimethoxysilane**

No relevant data found.

Octamethyltrisiloxane

Did not cause cancer in laboratory animals.

Diisopropoxydi(ethoxyacetoacetyl)titanate

No relevant data found.

Methanol

Did not cause cancer in laboratory animals.

Dimethyldimethoxysilane

No relevant data found.

Teratogenicity

May damage fertility or the unborn child.

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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s): 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.

Dimethyldimethoxysilane

Has caused birth defects in laboratory animals.

Reproductive toxicity

May damage fertility or the unborn child.

Information for the Product:

Product test data not available.

Information for components:

Methyltrimethoxysilane

In animal studies, did not interfere with reproduction.

Octamethyltrisiloxane

In animal studies, did not interfere with fertility. In animal studies, did not interfere with reproduction.

Diisopropoxydi(ethoxyacetoacetyl)titanate

No relevant data found.

Methanol

In animal studies, did not interfere with reproduction.

Dimethyldimethoxysilane

In animal studies, has been shown to interfere with fertility.

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.

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

In vitro 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.

Dimethyldimethoxysilane

In vitro genetic toxicity studies were negative.

12. ECOLOGICAL INFORMATION

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

Ecotoxicity

Methyltrimethoxysilane

Acute toxicity to fish

Material is practically non-toxic to aquatic organisms on an acute basis
(LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), flow-through, 96 Hour, > 110 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates

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

Acute toxicity to algae/aquatic plants

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

Toxicity to bacteria

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

Chronic toxicity to aquatic invertebrates

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

Octamethyltrisiloxane**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 test, 96 Hour, > 0.0191 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

No toxicity at the limit of solubility

EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 0.02 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

No toxicity at the limit of solubility

EC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, > 0.0094 mg/l, OECD Test Guideline 201

Toxicity to bacteria

For similar material(s):

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

Chronic toxicity to fish

No toxicity at the limit of solubility

NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, > 0.027 mg/l

Chronic toxicity to aquatic invertebrates

No toxicity at the limit of solubility

NOEC, Daphnia magna (Water flea), flow-through test, 21 d, > 0.015 mg/l

Diisopropoxydi(ethoxyacetoacetyl)titanate**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, Rasbora heteromorpha (Harlequin fish), static test, 96 Hour, 4,200 mg/l

Acute toxicity to aquatic invertebrates

LC50, Daphnia magna (Water flea), static test, 48 Hour, > 100 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, > 100 mg/l, OECD Test Guideline 201 or Equivalent

NOEC, Pseudokirchneriella subcapitata (green algae), static test, 72 Hour, Growth rate inhibition, 100 mg/l, OECD Test Guideline 201 or Equivalent

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

Dimethyldimethoxysilane**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).

Based on data from similar materials

LC50, Oncorhynchus mykiss (rainbow trout), 96 Hour, > 126 mg/l, OECD Test Guideline 203

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), 48 Hour, > 119 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants

Based on data from similar materials

EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, > 118 mg/l, OECD Test Guideline 201

Toxicity to bacteria

Based on data from similar materials

EC50, 3 Hour, > 100 mg/l, OECD Test Guideline 209

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

Octamethyltrisiloxane

Biodegradability: Biodegradation under aerobic laboratory conditions is below detectable limits (BOD20 or BOD28/ThOD < 2.5%).

10-day Window: Not applicable

Biodegradation: 0 %

Exposure time: 28 d

Method: OECD Test Guideline 310 or Equivalent

Photodegradation

Atmospheric half-life: 8.94 d

Method: Estimated.

Diisopropoxydi(ethoxyacetoacetyl)titanate

Biodegradability: For similar material(s): Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 66 %

Exposure time: 28 d

Method: OECD Test Guideline 301D

Methanol

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

Chemical Oxygen Demand: 1.49 mg/mg Dichromates

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.

Dimethyldimethoxysilane

Biodegradability: For similar material(s): Material is not readily biodegradable according to OECD/EEC guidelines.

10-day Window: Fail

Biodegradation: 0 %

Exposure time: 28 d

Stability in Water (1/2-life)

Hydrolysis, DT50, < 0.6 Hour, pH 7

Bioaccumulative potential**Methyltrimethoxysilane**

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

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

Octamethyltrisiloxane

Bioaccumulation: Bioconcentration potential is high (BCF > 3000 or Log Pow between 5 and 7).

Partition coefficient: n-octanol/water(log Pow): 5.35 Estimated.

Bioconcentration factor (BCF): >= 500 Pimephales promelas (fathead minnow) OECD Test Guideline 305

Diisopropoxydi(ethoxyacetoacetyl)titanate

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

Partition coefficient: n-octanol/water(log Pow): 0.05

Bioconcentration factor (BCF): 3 Fish Estimated.

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

Dimethyldimethoxysilane

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

Partition coefficient: n-octanol/water(log Pow): Pow: 2 estimated

Bioconcentration factor (BCF): 3.16 Estimated.

Mobility in Soil

Methyltrimethoxysilane

No relevant data found.

Octamethyltrisiloxane

Partition coefficient (Koc): 3179 Estimated.

Diisopropoxydi(ethoxyacetoacetyl)titanate

For similar material(s):

Partition coefficient (Koc): 1.53 Estimated.

Methanol

Partition coefficient (Koc): 0.44 Estimated.

Dimethyldimethoxysilane

Partition coefficient (Koc): 168.6 Estimated.

Results of PBT and vPvB assessment

Methyltrimethoxysilane

Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very bioaccumulative (vPvB).

Octamethyltrisiloxane

Substance is not persistent, bioaccumulative, and toxic (PBT).

Octamethyltrisiloxane (L3) meets the current REACH Annex XIII screening criteria for vPvB.

However, octamethyltrisiloxane (L3) does not behave similarly to known PBT/vPvB

substances. The weight of scientific evidence from field studies shows that

octamethyltrisiloxane (L3) is not biomagnifying in aquatic and terrestrial food webs.

Octamethyltrisiloxane (L3) in air will degrade by reaction with naturally occurring hydroxyl

radicals in the atmosphere. Any octamethyltrisiloxane (L3) in air that does not degrade by

reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

Diisopropoxydi(ethoxyacetoacetyl)titanate

Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very bioaccumulative (vPvB).

Methanol

Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very bioaccumulative (vPvB).

Dimethyldimethoxysilane

Substance is not persistent, bioaccumulative, and toxic (PBT). Substance is not very persistent and very bioaccumulative (vPvB).

Other adverse effects**Methyltrimethoxysilane**

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

Octamethyltrisiloxane

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

Diisopropoxydi(ethoxyacetoacetyl)titanate

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

Methanol

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

Dimethyldimethoxysilane

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

13. DISPOSAL CONSIDERATIONS

Disposal methods: DO NOT DUMP INTO ANY SEWERS, ON THE GROUND, OR INTO ANY BODY OF WATER. All disposal practices must be in compliance with all Federal, State/Provincial and local laws and regulations. Regulations may vary in different locations. Waste characterizations and compliance with applicable laws are the responsibility of the waste generator. AS YOUR SUPPLIER, WE HAVE NO CONTROL OVER THE MANAGEMENT PRACTICES OR MANUFACTURING PROCESSES OF PARTIES HANDLING OR USING THIS MATERIAL. THE INFORMATION PRESENTED HERE PERTAINS ONLY TO THE PRODUCT AS SHIPPED IN ITS INTENDED CONDITION AS DESCRIBED IN SDS SECTION 1: Identified Uses. FOR UNUSED & UNCONTAMINATED PRODUCT, the preferred options include sending to a licensed, permitted: Recycler. Reclaimer. Incinerator or other thermal destruction device.

14. TRANSPORT INFORMATION

Classification for ROAD and Rail transport:

Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Methyltrimethoxysilane, Octamethyltrisiloxane)
UN number	UN 1993
Class	3
Packing group	II

Classification for SEA transport (IMO-IMDG):

Proper shipping name	FLAMMABLE LIQUID, N.O.S.(Methyltrimethoxysilane, Octamethyltrisiloxane)
UN number	UN 1993
Class	3
Packing group	II
Marine pollutant	No
Special precautions for user	EmS: F-E, S-E
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.(Methyltrimethoxysilane, Octamethyltrisiloxane)
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.

15. REGULATORY INFORMATION

Philippines Inventory of Chemicals and Chemical Substances (PICCS)

The product contains an intentional component that is subject to a restriction. Production and/or use is limited by the conditions of the restriction.

Chemical Control Order (CCO) : Not applicable
Priority Chemical List (PCL) : Not applicable

16. OTHER INFORMATION

Revision

Identification Number: 6018178 / 1810 / Issue Date: 30.05.2025 / Version: 5.2

In case this version of the SDS contains significant changes from the previous version, they are listed below or noted by bold, double bars in the left-hand margin throughout this document. Changes encompass identification, hazards, tox/eco-tox information and the addition/removal of the ingredients, and regulatory information, hazard information, uses, risk management measures and other key regulatory changes of the product. Detailed explanation of the changes can be obtained upon request.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI	ACGIH - Biological Exposure Indices (BEI)
Dow IHG	Dow Industrial Hygiene Guideline
PH OEL	Philippines. Threshold Limit Values For Airborne Contaminants
STEL	Short-term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations

AIIC - Australian Inventory of Industrial Chemicals; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECS - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; 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; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; 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; WHMIS - Workplace Hazardous Materials Information System

DOW CHEMICAL PHILIPPINES, INC. 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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