

**DOW CORNING(R) 991 SILICONE HI-PERFORMANCE SEALANT GREY**

Version 1.5      Revision Date: 2016/04/22      SDS Number: 876403-00006      Date of last issue: 2015/09/30  
Date of first issue: 2014/12/02

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**1. PRODUCT AND COMPANY IDENTIFICATION**

Product name : DOW CORNING(R) 991 SILICONE HI-PERFORMANCE SEALANT GREY

Product code : 000000000002978300

**Manufacturer or supplier's details**

Company : Dow Corning Singapore Pte Ltd - Philippines Representative Office

Address : **Unit 2401 One San Miquel Avenue Condominium  
San Miquel Avenue corner Shaw Boulevard  
Pasig City, 1600 Philippines**

Telephone : + (63 2) 635 2798 or + (63 2) 635 2797

Emergency telephone number : + (65) 6542 9595 (24 hours)

Telefax : + (63 2) 634 0128

**Recommended use of the chemical and restrictions on use**


Recommended use : Construction materials and additives  
Adhesive, binding agents

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**2. HAZARDS IDENTIFICATION****GHS Classification**

Skin sensitisation : Category 1

**GHS label elements**

Hazard pictograms : 

Signal word : Warning

Hazard statements : H317 May cause an allergic skin reaction.

Precautionary statements : **Prevention:**  
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.  
P271 Use only outdoors or in a well-ventilated area.  
P272 Contaminated work clothing should not be allowed out of the workplace.  
P280 Wear protective gloves.

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**Response:**

P302 + P352 IF ON SKIN: Wash with plenty of water.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P362 + P364 Take off contaminated clothing and wash it before reuse.

**Disposal:**

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

**Other hazards which do not result in classification**

None known.

**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substance / Mixture : Mixture  
 Chemical nature : Silicone Sealant

**Hazardous components**

Chemical name	CAS-No.	Concentration (% w/w)
Methyltri(ethylmethylketoxime)silane	22984-54-9	>= 1 - < 5
Titanium dioxide	13463-67-7	>= 1 - < 5
Methyltrimethoxysilane	1185-55-3	>= 0.1 - < 1
Methyltri(ethylmethylketoxime)silane isomers and oligomers	Not Assigned	>= 0.1 - < 1
Vinyltri (methylethylketoxime) silane	2224-33-1	>= 0.1 - < 1
N-(3-(Trimethoxysilyl)propyl)ethylenediamine	1760-24-3	>= 0.1 - < 1
Ethyl methyl ketoxime	96-29-7	>= 0.1 - < 1

**4. FIRST AID MEASURES**

General advice : In the case of accident or if you feel unwell, seek medical advice immediately.  
 When symptoms persist or in all cases of doubt seek medical advice.

If inhaled : If inhaled, remove to fresh air.  
 Get medical attention.

In case of skin contact : In case of contact, immediately flush skin with soap and plenty of water.  
 Remove contaminated clothing and shoes.  
 Get medical attention.  
 Wash clothing before reuse.  
 Thoroughly clean shoes before reuse.

In case of eye contact : Flush eyes with water as a precaution.

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- Get medical attention if irritation develops and persists.
- If swallowed : If swallowed, DO NOT induce vomiting.  
Get medical attention.  
Rinse mouth thoroughly with water.
- Most important symptoms and effects, both acute and delayed : May cause an allergic skin reaction.
- Protection of first-aiders : First Aid responders should pay attention to self-protection, and use the recommended personal protective equipment when the potential for exposure exists.
- Notes to physician : Treat symptomatically and supportively.

**5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Alcohol-resistant foam  
Carbon dioxide (CO<sub>2</sub>)  
Dry chemical
- Unsuitable extinguishing media : None known.
- Specific hazards during fire-fighting : Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides  
Silicon oxides  
Formaldehyde  
Metal oxides  
Nitrogen oxides (NO<sub>x</sub>)
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.  
Use water spray to cool unopened containers.  
Remove undamaged containers from fire area if it is safe to do so.  
Evacuate area.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.  
Use personal protective equipment.

**6. ACCIDENTAL RELEASE MEASURES**

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.  
Follow safe handling advice and personal protective equipment recommendations.
- Environmental precautions : Discharge into the environment must be avoided.

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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 : Soak up with inert absorbent material.  
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. Clean up remaining materials from spill with suitable absorbent.  
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.  
Sections 13 and 15 of this SDS provide information regarding certain local or national requirements.

## 7. HANDLING AND STORAGE

Technical measures : See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

Local/Total ventilation : Use only with adequate ventilation.

Advice on safe handling : Do not get on skin or clothing.  
Do not swallow.  
Avoid contact with eyes.  
Handle in accordance with good industrial hygiene and safety practice.  
Keep away from water.  
Protect from moisture.  
Take care to prevent spills, waste and minimize release to the environment.

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

Materials to avoid : Do not store with the following product types:  
Strong oxidizing agents

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

## Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
Titanium dioxide	13463-67-7	TWA	15 mg/m <sup>3</sup>	PH OEL
		TWA	10 mg/m <sup>3</sup> (Titanium dioxide)	ACGIH
Methyltrimethoxysilane	1185-55-3	TWA	7.5 ppm	DCC OEL

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**Engineering measures** : Processing may form hazardous compounds (see section 10). Ensure adequate ventilation, especially in confined areas. Minimize workplace exposure concentrations.

**Personal protective equipment**

Respiratory protection : Use respiratory protection unless adequate local exhaust ventilation is provided or exposure assessment demonstrates that exposures are within recommended exposure guidelines.

Filter type : Organic vapour type

## Hand protection

Material : Chemical-resistant gloves

## Remarks

: Choose gloves to protect hands against chemicals depending on the concentration and quantity of the hazardous substance and specific to place of work. Breakthrough time is not determined for the product. Change gloves often! For special applications, we recommend clarifying the resistance to chemicals of the aforementioned protective gloves with the glove manufacturer. Wash hands before breaks and at the end of workday.

## Eye protection

: Wear the following personal protective equipment:  
Safety goggles

## Skin and body protection

: Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential. Skin contact must be avoided by using impervious protective clothing (gloves, aprons, boots, etc).

## Hygiene measures

: Ensure that eye flushing systems and safety showers are located close to the working place.  
When using do not eat, drink or smoke.  
Wash contaminated clothing before re-use.  
These precautions are for room temperature handling. Use at elevated temperature or aerosol/spray applications may require added precautions.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

Appearance : paste

Colour : grey

Odour : characteristic

Odour Threshold : No data available

pH : Not applicable

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Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	Not applicable
Flash point	:	Not applicable
Evaporation rate	:	Not applicable
Flammability (solid, gas)	:	Not classified as a flammability hazard
Upper explosion limit	:	No data available
Lower explosion limit	:	No data available
Vapour pressure	:	Not applicable
Relative vapour density	:	No data available
Relative density	:	1.31
Solubility(ies) Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity Viscosity, dynamic	:	Not applicable
Explosive properties	:	Not explosive
Oxidizing properties	:	The substance or mixture is not classified as oxidizing.
Molecular weight	:	No data available

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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	:	Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Methyl alcohol is formed upon contact with water or humid air. Hazardous decomposition products will be formed upon contact with water or humid air. Hazardous decomposition products will be formed at elevated

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temperatures.

Conditions to avoid : Exposure to moisture

Incompatible materials : Oxidizing agents  
Water

**Hazardous decomposition products**

Contact with water or humid air : Ethyl methyl ketoxime

Thermal decomposition : Formaldehyde

**11. TOXICOLOGICAL INFORMATION**

Information on likely routes of exposure : Skin contact  
Ingestion  
Eye contact

**Acute toxicity**

Not classified based on available information.

**Components:****Methyltri(ethylmethylketoxime)silane:**

Acute oral toxicity : LD50 (Rat): > 2,520 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on test data

**Titanium dioxide:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 6.82 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity

**Methyltrimethoxysilane:**

Acute oral toxicity : LD50 (Rat): 12.3 ml/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Information taken from reference works and the literature.

Acute inhalation toxicity : LC50 (Rat): > 42.1 mg/l  
Exposure time: 6 h  
Test atmosphere: vapour  
Assessment: The substance or mixture has no acute inhalation toxicity

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tion toxicity  
Remarks: Based on test data

Acute dermal toxicity : LD50 (Rabbit): > 9,500 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on test data

**Vinyltri (methylethylketoxime) silane:**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on test data

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on test data

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Acute oral toxicity : LD50 (Rat): 2,295 mg/kg  
Remarks: Based on test data

Acute inhalation toxicity : LC50 (Rat): > 1.49 mg/l  
Exposure time: 4 h  
Test atmosphere: dust/mist  
Remarks: Based on test data

Acute dermal toxicity : LD50 (Rabbit): > 2,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on test data

**Ethyl methyl ketoxime:**

Acute oral toxicity : LD50 (Rat): 2,326 mg/kg  
Method: OECD Test Guideline 401

Acute inhalation toxicity : LC50 (Rat): > 4.83 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour  
Method: OECD Test Guideline 403  
Assessment: The substance or mixture has no acute inhalation toxicity

Acute dermal toxicity : LD50 (Rabbit): > 1,000 - 1,800 mg/kg

**Skin corrosion/irritation**

Not classified based on available information.



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**Components:****Methyltri(ethylmethylketoxime)silane:**

Species: Rabbit  
Result: No skin irritation  
Remarks: Based on data from similar materials

**Titanium dioxide:**

Species: Rabbit  
Result: No skin irritation

**Methyltrimethoxysilane:**

Species: Rabbit  
Result: No skin irritation  
Remarks: Based on test data

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Species: Rabbit  
Result: Mild skin irritation  
Remarks: Based on test data

**Ethyl methyl ketoxime:**

Species: Rabbit  
Result: No skin irritation

**Serious eye damage/eye irritation**

Not classified based on available information.

**Components:****Methyltri(ethylmethylketoxime)silane:**

Species: Rabbit  
Result: Irritation to eyes, reversing within 7 days  
Remarks: Based on test data

**Titanium dioxide:**

Species: Rabbit  
Result: No eye irritation

**Methyltrimethoxysilane:**

Species: Rabbit  
Result: No eye irritation  
Remarks: Based on test data

**Methyltri(ethylmethylketoxime)silane isomers and oligomers:**

Species: Rabbit  
Result: Irritation to eyes, reversing within 7 days  
Remarks: Based on data from similar materials

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**Vinyltri (methylethylketoxime) silane:**

Species: Rabbit  
Result: Irreversible effects on the eye  
Remarks: Based on test data

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Species: Rabbit  
Result: Irreversible effects on the eye  
Remarks: Based on test data

**Ethyl methyl ketoxime:**

Species: Rabbit  
Method: OECD Test Guideline 405  
Result: Irreversible effects on the eye

**Respiratory or skin sensitisation****Skin sensitisation**

May cause an allergic skin reaction.

**Respiratory sensitisation**

Not classified based on available information.

**Components:****Methyltri(ethylmethylketoxime)silane:**

Assessment: Probability or evidence of skin sensitisation in humans

Test Type: Maximisation Test  
Species: Guinea pig  
Remarks: Based on test data

**Titanium dioxide:**

Test Type: Local lymph node assay (LLNA)  
Exposure routes: Skin contact  
Species: Mouse  
Result: negative

**Methyltrimethoxysilane:**

Assessment: Probability or evidence of low to moderate skin sensitisation rate in humans

Test Type: Buehler Test  
Species: Guinea pig  
Remarks: Based on test data

**Methyltri(ethylmethylketoxime)silane isomers and oligomers:**

Assessment: Probability or evidence of skin sensitisation in humans

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Test Type: Maximisation Test  
Species: Guinea pig  
Remarks: Based on data from similar materials

**Vinyltri (methylethylketoxime) silane:**

Assessment: Probability or evidence of skin sensitisation in humans

Test Type: Maximisation Test  
Species: Guinea pig  
Remarks: Based on data from similar materials

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Assessment: Probability or evidence of skin sensitisation in humans

Test Type: Maximisation Test  
Species: Guinea pig  
Remarks: Information taken from reference works and the literature.

**Ethyl methyl ketoxime:**

Test Type: Buehler Test  
Exposure routes: Skin contact  
Species: Guinea pig  
Method: OECD Test Guideline 406  
Result: positive

Assessment: Probability or evidence of skin sensitisation in humans

**Germ cell mutagenicity**

Not classified based on available information.

**Components:****Methyltri(ethylmethylketoxime)silane:**

Genotoxicity in vitro : Test Type: Mutagenicity (in vitro mammalian cytogenetic test)  
Result: negative  
Remarks: Based on test data

**Titanium dioxide:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative

Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Mouse  
Result: negative

**Methyltrimethoxysilane:**

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
Remarks: Based on test data

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- Genotoxicity in vitro : Test Type: Mutagenicity (in vitro mammalian cytogenetic test)  
Result: positive  
Remarks: Based on test data
- Genotoxicity in vitro : Test Type: Chromosome aberration test in vitro  
Result: positive  
Remarks: Based on test data
- Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)  
Species: Mouse  
Application Route: Ingestion  
Result: negative  
Remarks: Based on test data
- Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

**Vinyltri (methylethylketoxime) silane:**

- Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)  
Result: negative  
Remarks: Based on test data
- Genotoxicity in vivo : Test Type: In vivo micronucleus test  
Species: Mouse  
Application Route: Intraperitoneal injection  
Result: negative  
Remarks: Based on test data
- Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

**Ethyl methyl ketoxime:**

- Genotoxicity in vitro : Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)  
Result: negative
- Genotoxicity in vivo : Test Type: Mutagenicity (in vivo mammalian bone-marrow cytogenetic test, chromosomal analysis)  
Species: Rat  
Application Route: Ingestion  
Result: negative

**Carcinogenicity**

Not classified based on available information.

**Components:****Titanium dioxide:**

Species: Rat  
Application Route: inhalation (dust/mist/fume)  
Exposure time: 24 Months

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Method: OECD Test Guideline 453

Result: positive

Remarks: The mechanism or mode of action may not be relevant in humans.

The substance is inextricably bound in the product and therefore does not contribute to a dust inhalation hazard.

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in inhalation studies with animals.

**Ethyl methyl ketoxime:**

Species: Rat

Application Route: inhalation (vapour)

Exposure time: 26 Months

Result: positive

Carcinogenicity - Assessment : Limited evidence of carcinogenicity in animal studies

**Reproductive toxicity**

Not classified based on available information.

**Components:**

**Methyltri(ethylmethylketoxime)silane:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat, male and female  
Application Route: Ingestion  
Symptoms: No effects on fertility  
Remarks: Based on test data

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat, male and female  
Application Route: Ingestion  
Symptoms: No effects on foetal development  
Remarks: Based on test data

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

**Methyltrimethoxysilane:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat, male and female  
Application Route: Ingestion  
Symptoms: No effects on fertility  
Remarks: Based on test data

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Species: Rat, male and female

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Application Route: Ingestion  
Symptoms: No effects on foetal development  
Remarks: Based on test data

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Effects on fertility : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Application Route: Ingestion  
Symptoms: No effects on fertility  
Remarks: Based on test data

Effects on foetal development : Test Type: Combined repeated dose toxicity study with the reproduction/developmental toxicity screening test  
Application Route: Ingestion  
Symptoms: No effects on foetal development  
Remarks: Based on test data

Reproductive toxicity - Assessment : No evidence of adverse effects on sexual function and fertility, or on development, based on animal experiments.

**Ethyl methyl ketoxime:**

Effects on fertility : Test Type: Two-generation reproduction toxicity study  
Species: Rat  
Application Route: Ingestion  
Result: negative

Effects on foetal development : Test Type: Embryo-foetal development  
Species: Rat  
Application Route: Ingestion  
Result: negative

**STOT - single exposure**

Not classified based on available information.

**Components:****Ethyl methyl ketoxime:**

Assessment: May cause drowsiness or dizziness.

**STOT - repeated exposure**

Not classified based on available information.

**Components:****Methyltri(ethylmethylketoxime)silane:**

Exposure routes: Ingestion

Target Organs: Blood

Assessment: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

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**Methyltrimethoxysilane:**

Exposure routes: inhalation (vapour)

Assessment: No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

Exposure routes: Ingestion

Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

**Methyltri(ethylmethylketoxime)silane isomers and oligomers:**

Exposure routes: Ingestion

Target Organs: Blood

Assessment: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

**Vinyltri (methylethylketoxime) silane:**

Exposure routes: Ingestion

Target Organs: Blood

Assessment: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Exposure routes: Ingestion

Assessment: No significant health effects observed in animals at concentrations of 100 mg/kg bw or less.

**Ethyl methyl ketoxime:**

Exposure routes: Ingestion

Target Organs: Blood

Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

Exposure routes: inhalation (vapour)

Target Organs: Blood

Assessment: Shown to produce significant health effects in animals at concentrations of 0.2 mg/l/6h/d or less.

**Repeated dose toxicity****Components:****Methyltri(ethylmethylketoxime)silane:**

Species: Rat

Application Route: Ingestion

Target Organs: Blood

Remarks: Based on test data

**Titanium dioxide:**

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Species: Rat  
NOAEL: 24,000 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days

Species: Rat  
NOAEL: 10 mg/m<sup>3</sup>  
Application Route: inhalation (dust/mist/fume)  
Exposure time: 2 yr  
Remarks: The substance is inextricably bound in the product and therefore does not contribute to a dust inhalation hazard.

**Methyltrimethoxysilane:**

Species: Rat  
Application Route: inhalation (vapour)  
Remarks: Based on test data

Species: Rat  
Application Route: Ingestion  
Remarks: Based on test data

**Methyltri(ethylmethylketoxime)silane isomers and oligomers:**

Species: Rat  
Application Route: Ingestion  
Target Organs: Blood  
Remarks: Based on data from similar materials

**Vinyltri (methylethylketoxime) silane:**

Species: Rat  
Application Route: Ingestion  
Target Organs: Blood  
Remarks: Based on data from similar materials

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Application Route: Ingestion  
Remarks: Based on test data

**Ethyl methyl ketoxime:**

Species: Rat  
LOAEL: 0.36 mg/l  
Application Route: inhalation (vapour)  
Exposure time: 28 Days

Species: Rat  
NOAEL: 4 mg/l  
LOAEL: 20 mg/kg  
Application Route: Ingestion  
Exposure time: 28 Days



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**Aspiration toxicity**

Not classified based on available information.

**Further information****Product:**

Remarks: 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.

**12. ECOLOGICAL INFORMATION****Ecotoxicity****Components:****Methyltri(ethylmethylketoxime)silane:**

- |   |   |  |
|---|---|--|
| Toxicity to fish                                    | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 120 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203<br>Remarks: Based on data from similar materials    |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 120 mg/l<br>Exposure time: 48 h<br>Method: OECD Test Guideline 202<br>Remarks: Based on data from similar materials             |
| Toxicity to algae                                   | : | ErC50 ( Selenastrum capricornutum (green algae)): 94 mg/l<br>Exposure time: 72 h<br>Method: OECD Test Guideline 201<br>Remarks: Based on data from similar materials |

**Ecotoxicology Assessment**

- |                        |   |   |
|------------------------|---|---|
| Acute aquatic toxicity | : | This product has no known ecotoxicological effects. |
|------------------------|---|---|

**Titanium dioxide:**

- |   |   |  |
|---|---|--|
| Toxicity to fish                                    | : | LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l<br>Exposure time: 96 h<br>Method: OECD Test Guideline 203 |
| Toxicity to daphnia and other aquatic invertebrates | : | EC50 (Daphnia magna (Water flea)): > 100 mg/l<br>Exposure time: 48 h   |
| Toxicity to algae                                   | : | EC50 ( Skeletonema costatum (marine diatom)): > 10,000 mg/l<br>Exposure time: 72 h                               |
| Toxicity to bacteria                                | : | EC50: > 1,000 mg/l<br>Exposure time: 3 h<br>Method: OECD Test Guideline 209                                      |

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**Methyltrimethoxysilane:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp.): > 100 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202
- Toxicity to algae : ErC50 ( Pseudokirchneriella subcapitata (green algae)): > 3.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility
- EC10 ( Pseudokirchneriella subcapitata (green algae)): > 3.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: No toxicity at the limit of solubility
- Toxicity to bacteria : EC50: > 100 mg/l  
Method: OECD Test Guideline 209

**Vinyltri (methylethylketoxime) silane:**

- Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 120 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203
- LC50 (Oryzias latipes (Orange-red killifish)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): 597 mg/l  
Exposure time: 96 h  
Method: Directive 67/548/EEC, Annex V, C.1.
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia sp.): 81 mg/l  
Exposure time: 48 h  
Method: Directive 67/548/EEC, Annex V, C.2.
- Toxicity to algae : ErC50 ( Selenastrum capricornutum (green algae)): 8.8 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- NOEC ( Selenastrum capricornutum (green algae)): 3.1 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201
- Toxicity to bacteria : EC50 (Pseudomonas putida): 67 mg/l  
Exposure time: 16 h

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Method: DIN 38 412 Part 8

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 1 mg/l  
Exposure time: 21 d  
Species: Daphnia sp.

**Ethyl methyl ketoxime:**

Toxicity to fish : LC50 (Oryzias latipes (Japanese medaka)): > 100 mg/l  
Exposure time: 96 h  
Method: OECD Test Guideline 203

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 201 mg/l  
Exposure time: 48 h  
Method: OECD Test Guideline 202

Toxicity to algae : EC50 ( Scenedesmus capricornutum (fresh water algae)): 11.8 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

NOEC ( Scenedesmus capricornutum (fresh water algae)): 2.56 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201

Toxicity to bacteria : EC50 (Pseudomonas putida): 281 mg/l  
Exposure time: 17 h

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC: > 100 mg/l  
Exposure time: 21 d  
Species: Daphnia magna (Water flea)  
Method: OECD Test Guideline 211

**Persistence and degradability****Components:****Methyltri(ethylmethylketoxime)silane:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 14.5 %  
Exposure time: 21 d  
Method: OECD Test Guideline 302B  
Remarks: Based on data from similar materials

**Methyltrimethoxysilane:**

Stability in water : Degradation half life: 2.2 h pH: 7

**Vinyltri (methylethylketoxime) silane:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d

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Method: OECD Test Guideline 301A

Stability in water : Degradation half life: < 1 min (2 °C)  
Method: OECD Test Guideline 111

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 39 %  
Method: OECD Test Guideline 301A

Stability in water : Degradation half life: 0.025 h (24.7 °C) pH: 7  
Method: OECD Test Guideline 111

**Ethyl methyl ketoxime:**

Biodegradability : Result: Not readily biodegradable.  
Biodegradation: 27 %  
Exposure time: 21 d  
Method: OECD Test Guideline 301C

**Bioaccumulative potential****Components:****Methyltri(ethylmethylketoxime)silane:**

Partition coefficient: n-octanol/water : log Pow: 11.2

**Methyltrimethoxysilane:**

Partition coefficient: n-octanol/water : log Pow: -2.36

**N-(3-(Trimethoxysilyl)propyl)ethylenediamine:**

Partition coefficient: n-octanol/water : log Pow: -0.3

**Ethyl methyl ketoxime:**

Bioaccumulation : Species: Cyprinus carpio (Carp)  
Bioconcentration factor (BCF): 0.5 - 0.6  
Method: OECD Test Guideline 305

Partition coefficient: n-octanol/water : log Pow: 0.63

**Mobility in soil**

No data available

**Other adverse effects**

No data available

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**13. DISPOSAL CONSIDERATIONS****Disposal methods**

- Waste from residues : Dispose of in accordance with local regulations.
- Contaminated packaging : Empty containers should be taken to an approved waste handling site for recycling or disposal.  
If not otherwise specified: Dispose of as unused product.
- 

**14. TRANSPORT INFORMATION****International Regulations****UNRTDG**

Not regulated as a dangerous good

**IATA-DGR**

Not regulated as a dangerous good

**IMDG-Code**

Not regulated as a dangerous good

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable for product as supplied.

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**15. REGULATORY INFORMATION****Safety, health and environmental regulations/legislation specific for the substance or mixture**

Priority Chemical List (PCL) : Not applicable

Chemical Control Order (CCO) : Not applicable

**The components of this product are reported in the following inventories:**

NZIoC : All ingredients listed or exempt.

AICS : All ingredients listed or exempt.

IECSC : All ingredients listed or exempt.

KECI : All ingredients listed, exempt or notified.

PICCS : All ingredients listed or exempt.

TCSI : All ingredients listed or exempt.

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**16. OTHER INFORMATION****Further information**

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Sources of key data used to compile the Safety Data Sheet : Internal technical data, data from raw material SDSs, OECD eChem Portal search results and European Chemicals Agency, <http://echa.europa.eu/>

Items where changes have been made to the previous version are highlighted in the body of this document by two vertical lines.

Date format : yyyy/mm/dd

**Full text of other abbreviations**

ACGIH : USA. ACGIH Threshold Limit Values (TLV)  
DCC OEL : Dow Corning Guide  
PH OEL : Philippines. Threshold Limit Values For Airborne Contaminants  
ACGIH / TWA : 8-hour, time-weighted average  
DCC OEL / TWA : Time weighted average  
PH OEL / TWA : Threshold limit for airborne contaminants

AICS - Australian Inventory of Chemical Substances; 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; CPR - Controlled Products Regulations; 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; 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; 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; 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

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information is designed only as a guidance for safe han-

# SAFETY DATA SHEET

**DOW CORNING**

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dling, use, processing, storage, transportation, disposal and release and shall not be considered a warranty or quality specification of any type. The information provided relates only to the specific material identified at the top of this SDS and may not be valid when the SDS material is used in combination with any other materials or in any process, unless specified in the text. Material users should review the information and recommendations in the specific context of their intended manner of handling, use, processing and storage, including an assessment of the appropriateness of the SDS material in the user's end product, if applicable.

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