

SAFETY DATA SHEET

SILASTIC™ RTV-3081-F Mould-Making Curing Agent



Version 7.0 Revision Date: 03/09/2018 SDS Number: 671574-00011 Date of last issue: 08/14/2017
Date of first issue: 10/24/2014

SECTION 1. IDENTIFICATION

Product name : SILASTIC™ RTV-3081-F Mould-Making Curing Agent
Product code : 04107685

Manufacturer or supplier's details

Company Identification : THE DOW CHEMICAL COMPANY
2030 DOW CENTER
MIDLAND MI 48674-0000
UNITED STATES

Telephone : 800-258-2436

24-Hour Emergency Contact : Chemtrec +1 800-424-9300

Local Emergency Number : 800-424-9300

E-mail address : SDSQuestion@dow.com

Recommended use of the chemical and restrictions on use

Recommended use : Vulcanising agents
Polymer

SECTION 2. HAZARDS IDENTIFICATION

GHS classification in accordance with 29 CFR 1910.1200

Flammable liquids : Category 4
Reproductive toxicity : Category 2
Specific target organ systemic toxicity - repeated exposure (Oral) : Category 1 (Immune system, Central nervous system)
Specific target organ systemic toxicity - repeated exposure (Oral) : Category 2 (Bladder, Kidney)

GHS label elements

Hazard pictograms :

Signal Word : Danger

Hazard Statements : H227 Combustible liquid.
H361d Suspected of damaging the unborn child.

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H372 Causes damage to organs (Immune system, Central nervous system) through prolonged or repeated exposure if swallowed.

H373 May cause damage to organs (Bladder, Kidney) through prolonged or repeated exposure if swallowed.

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.

P260 Do not breathe mist or vapors.

P264 Wash skin thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

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

Vapors may form explosive mixture with air.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Chemical nature : Organotin compound

Hazardous ingredients

| Chemical name | CAS-No. | Concentration (% w/w) |
|---|------------|-----------------------|
| Trimethoxyphenylsilane | 2996-92-1 | >= 9 - <= 13 |
| Dimethylbis[(1-oxoneodecyl)oxy]stannane | 68928-76-7 | >= 5 - <= 8 |
| Methanol | 67-56-1 | >= 0.31 - <= 0.41 |
| Tetramethoxysilane | 681-84-5 | <= 0.14 |

SECTION 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

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- 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.
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 : Suspected of damaging the unborn child.
Causes damage to organs through prolonged or repeated exposure if swallowed.
- 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.
-

SECTION 5. FIRE-FIGHTING MEASURES

- Suitable extinguishing media : Water spray
Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during fire fighting : Do not use a solid water stream as it may scatter and spread fire.
Flash back possible over considerable distance.
Vapors may form explosive mixtures with air.
Exposure to combustion products may be a hazard to health.
- Hazardous combustion products : Carbon oxides
Silicon oxides
Formaldehyde
Metal oxides
- Specific extinguishing methods : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Use water spray to cool unopened containers.
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Remove undamaged containers from fire area if it is safe to do so.

Evacuate area.

Special protective equipment for fire-fighters : In the event of fire, wear self-contained breathing apparatus. Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Remove all sources of ignition. Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions : Discharge into the environment must be avoided. Prevent further leakage or spillage if safe to do so. 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/vapors/mists with a water spray jet. For large spills, provide diking or other appropriate containment to keep material from spreading. If diked 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.

SECTION 7. HANDLING AND STORAGE

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

Local/Total ventilation : Use with local exhaust ventilation.

Advice on safe handling : Avoid inhalation of vapor or mist. Do not swallow. Avoid contact with eyes. Avoid prolonged or repeated contact with skin. Handle in accordance with good industrial hygiene and safety practice, based on the results of the workplace exposure

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- assessment
 Keep container tightly closed.
 Keep away from water.
 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.
- Conditions for safe storage : Keep in properly labeled 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.
- Materials to avoid : Do not store with the following product types:
 Strong oxidizing agents
 Organic peroxides
 Explosives
 Gases

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

| Ingredients | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|--------------------------------------|------------|-------------------------------|--|-----------|
| Trimethoxyphenylsilane | 2996-92-1 | TWA | 50 ppm | DCC OEL |
| Dimethylbis[(1-oxodecyl)oxy]stannane | 68928-76-7 | TWA | 0.1 mg/m ³ (Tin) | OSHA Z-1 |
| | | TWA | 0.1 mg/m ³ (Tin) | ACGIH |
| | | STEL | 0.2 mg/m ³ (Tin) | ACGIH |
| | | TWA | 0.1 mg/m ³ (Tin) | NIOSH REL |
| Methanol | 67-56-1 | TWA | 200 ppm | ACGIH |
| | | STEL | 250 ppm | ACGIH |
| | | TWA | 200 ppm 260 mg/m ³ | NIOSH REL |
| | | ST | 250 ppm 325 mg/m ³ | NIOSH REL |
| | | TWA | 200 ppm 260 mg/m ³ | OSHA Z-1 |
| Tetramethoxysilane | 681-84-5 | TWA | 1 ppm | ACGIH |
| | | TWA | 1 ppm 6 mg/m ³ | NIOSH REL |

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Occupational exposure limits of decomposition products

| Ingredients | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|-------------|---------|-------------------------------|--|-----------|
| Propan-1-ol | 71-23-8 | TWA | 100 ppm | ACGIH |
| | | TWA | 200 ppm 500 mg/m ³ | NIOSH REL |
| | | ST | 250 ppm 625 mg/m ³ | NIOSH REL |
| Methanol | 67-56-1 | TWA | 200 ppm 500 mg/m ³ | OSHA Z-1 |
| | | STEL | 250 ppm | ACGIH |
| | | TWA | 200 ppm 260 mg/m ³ | NIOSH REL |
| | | ST | 250 ppm 325 mg/m ³ | NIOSH REL |
| | | TWA | 200 ppm 260 mg/m ³ | OSHA Z-1 |

Biological occupational exposure limits

| Ingredients | CAS-No. | Control parameters | Biological specimen | Sam-pling time | Permissible concentra-tion | Basis |
|-------------|---------|--------------------|---------------------|--|----------------------------|--------------|
| Methanol | 67-56-1 | Methanol | Urine | End of shift (As soon as possible after exposure ceases) | 15 mg/l | ACGIH BEI |

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 : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

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Hand protection

Material : Chemical-resistant gloves

Remarks : Choose gloves to protect hands against chemicals depending on the concentration 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. Take note that the product is flammable, which may impact the selection of hand protection. Wash hands before breaks and at the end of workday.

Eye protection : Wear the following personal protective equipment:
Safety glasses

Skin and body protection : Select appropriate protective clothing based on chemical resistance data and an assessment of the local exposure potential.
Wear the following personal protective equipment:
Flame retardant antistatic protective clothing, unless assessment demonstrates that the risk of explosive atmospheres or flash fires is low
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.
For further information regarding the use of silicones / organic oils in consumer aerosol applications, please refer to the guidance document regarding the use of these type of materials in consumer aerosol applications that has been developed by the silicone industry (www.SEHSC.com) or contact the Dow Chemical customer service group.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid
Color : Clear to slightly hazy, colorless
Odor : slight
Odor Threshold : No data available
pH : No data available

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Melting point/freezing point : No data available

Initial boiling point and boiling range : > 35 °C

Flash point : 64 °C
Method: Pensky-Martens closed cup

Evaporation rate : No data available

Flammability (solid, gas) : Not applicable

Flammability (liquids) : Not applicable

Self-ignition : The substance or mixture is not classified as pyrophoric. The substance or mixture is not classified as self heating.

Upper explosion limit / Upper flammability limit : No data available

Lower explosion limit / Lower flammability limit : No data available

Vapor pressure : No data available

Relative vapor density : No data available

Relative density : 0.969

Solubility(ies)
Water solubility : No data available

Partition coefficient: n-octanol/water : No data available

Autoignition temperature : No data available

Decomposition temperature : No data available

Viscosity
Viscosity, dynamic : 40 mPa.s

Explosive properties : Not explosive

Oxidizing properties : The substance or mixture is not classified as oxidizing.

Molecular weight : No data available

Particle size : Not applicable

SECTION 10. STABILITY AND REACTIVITY

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- Reactivity : Not classified as a reactivity hazard.
- Chemical stability : Stable under normal conditions.
- Possibility of hazardous reactions : Combustible liquid.
Vapors may form explosive mixture with air.
Use at elevated temperatures may form highly hazardous compounds.
Can react with strong oxidizing agents.
Hazardous decomposition products will be formed upon contact with water or humid air.
Hazardous decomposition products will be formed at elevated temperatures.
- Conditions to avoid : Exposure to moisture.
Heat, flames and sparks.
- Incompatible materials : Oxidizing agents
Water
- Hazardous decomposition products**
- Contact with water or humid air : Propan-1-ol
Methanol
- Thermal decomposition : Benzene
Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Inhalation
Skin contact
Ingestion
Eye contact

Acute toxicity

Not classified based on available information.

Product:

- Acute oral toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method
- Acute inhalation toxicity : Acute toxicity estimate: > 200 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Calculation method
- Acute dermal toxicity : Acute toxicity estimate: > 5,000 mg/kg
Method: Calculation method

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Ingredients:

Trimethoxyphenylsilane:

Acute oral toxicity : LD50 (Rat): 1,049 mg/kg
Remarks: On basis of test data.

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Acute oral toxicity : LD50 (Rat): 894 mg/kg
Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Methanol:

Acute oral toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

Acute inhalation toxicity : Acute toxicity estimate: 3 mg/l
Exposure time: 4 h
Test atmosphere: vapor
Method: Expert judgment
Remarks: Based on harmonised classification in EU regulation 1272/2008, Annex VI

Acute dermal toxicity : Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

Tetramethoxysilane:

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

Acute inhalation toxicity : LC50 (Rat): 63 ppm
Exposure time: 4 h
Test atmosphere: vapor
Remarks: On basis of test data.

Acute dermal toxicity : LD50 (Rabbit): 17,544 mg/kg
Assessment: The substance or mixture has no acute dermal toxicity
Remarks: Information taken from reference works and the literature.

Skin corrosion/irritation

Not classified based on available information.

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Ingredients:

Trimethoxyphenylsilane:

Species: Rabbit
Result: No skin irritation
Remarks: On basis of test data.

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Species: Rabbit
Method: OECD Test Guideline 404
Result: No skin irritation

Methanol:

Species: Rabbit
Result: No skin irritation

Tetramethoxysilane:

Species: Rabbit
Result: Skin irritation
Remarks: Based on data from similar materials

Serious eye damage/eye irritation

Not classified based on available information.

Ingredients:

Trimethoxyphenylsilane:

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

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Species: Rabbit
Result: No eye irritation
Method: OECD Test Guideline 405

Methanol:

Species: Rabbit
Result: No eye irritation

Tetramethoxysilane:

Result: Irreversible effects on the eye
Remarks: On basis of test data.

Respiratory or skin sensitization

Skin sensitization

Not classified based on available information.

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Respiratory sensitization

Not classified based on available information.

Ingredients:

Methanol:

Test Type: Maximization Test
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Tetramethoxysilane:

Assessment: Does not cause skin sensitization.

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

Germ cell mutagenicity

Not classified based on available information.

Ingredients:

Trimethoxyphenylsilane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: On basis of test data.

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Methanol:

Genotoxicity in vitro : Test Type: Bacterial reverse mutation assay (AMES)
Method: OECD Test Guideline 471
Result: negative

Test Type: In vitro mammalian cell gene mutation test
Result: negative

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Species: Mouse
Application Route: Intraperitoneal injection
Result: negative

Tetramethoxysilane:

Genotoxicity in vivo : Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)

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Species: Rat
Application Route: Inhalation
Result: negative
Remarks: On basis of test data.

Germ cell mutagenicity - Assessment : Animal testing did not show any mutagenic effects.

Carcinogenicity

Not classified based on available information.

Ingredients:

Methanol:

Species: Mouse
Application Route: inhalation (vapor)
Exposure time: 18 Months
Result: negative

IARC

No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity

Suspected of damaging the unborn child.

Ingredients:

Trimethoxyphenylsilane:

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: On basis of test data.

Effects on fetal 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 fetal development.
Remarks: On basis of test data.

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

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Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Reproductive toxicity - Assessment : Some evidence of adverse effects on development, based on animal experiments.

Methanol:

Effects on fertility : Test Type: Fertility/early embryonic development
Species: Mouse
Application Route: Ingestion
Result: negative

Effects on fetal development : Test Type: Embryo-fetal development
Species: Mouse
Application Route: Ingestion
Result: positive
Remarks: The effects were seen only at maternally toxic doses.

STOT-single exposure

Not classified based on available information.

Ingredients:

Methanol:

Target Organs: Eyes, Central nervous system
Assessment: Causes damage to organs.

STOT-repeated exposure

Causes damage to organs (Immune system, Central nervous system) through prolonged or repeated exposure if swallowed.
May cause damage to organs (Bladder, Kidney) through prolonged or repeated exposure if swallowed.

Ingredients:

Trimethoxyphenylsilane:

Routes of exposure: Ingestion
Target Organs: Bladder, Kidney
Assessment: Shown to produce significant health effects in animals at concentrations of >10 to 100 mg/kg bw.

Routes of exposure: inhalation (vapor)
Assessment: No significant health effects observed in animals at concentrations of 1 mg/l/6h/d or less.

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Routes of exposure: Ingestion
Target Organs: Immune system, Central nervous system
Assessment: Shown to produce significant health effects in animals at concentrations of 10 mg/kg bw or less.

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Tetramethoxysilane:

Routes of exposure: inhalation (vapor)
Target Organs: Respiratory system
Assessment: Shown to produce significant health effects in animals at concentrations of 0.2 mg/l/6h/d or less.

Repeated dose toxicity

Ingredients:

Trimethoxyphenylsilane:

Species: Rat
Application Route: Ingestion
Target Organs: Bladder, Kidney
Remarks: On basis of test data.

Species: Rat
Application Route: inhalation (vapor)
Remarks: On basis of test data.

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Species: Rat
NOAEL: < 1.6 mg/kg
Application Route: Ingestion
Exposure time: 90 Days
Remarks: Based on data from similar materials

Methanol:

Species: Rat
NOAEL: 1.06 mg/l
Application Route: inhalation (vapor)
Exposure time: 90 Days

Tetramethoxysilane:

Species: Rat
Application Route: inhalation (vapor)
Target Organs: Respiratory system
Remarks: On basis of test data.

Aspiration toxicity

Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:

Trimethoxyphenylsilane:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): > 100 mg/l

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Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials
No toxicity at the limit of solubility.

LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.20 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: On basis of test data.
No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 0.0029 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: On basis of test data.
No toxicity at the limit of solubility.

Toxicity to algae : ErC50 (Pseudokirchneriella subcapitata (green algae)): > 0.17 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: On basis of test data.
No toxicity at the limit of solubility.

Toxicity to microorganisms : EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209
Remarks: Based on data from similar materials

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 100 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 203
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 17 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials

Toxicity to algae : ErC50 (Desmodesmus subspicatus (green algae)): 37 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

EC10 (Desmodesmus subspicatus (green algae)): 5.7 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: Based on data from similar materials

Methanol:

Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l

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Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l
Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 22,000 mg/l
Exposure time: 96 h
Method: OECD Test Guideline 201

Toxicity to fish (Chronic toxicity) : NOEC (Oryzias latipes (Orange-red killifish)): 15,800 mg/l
Exposure time: 200 h

Toxicity to microorganisms : IC50: > 1,000 mg/l
Exposure time: 3 h

Tetramethoxysilane:

Toxicity to fish : LC50 (Danio rerio (zebra fish)): > 245 mg/l
Exposure time: 96 h
Method: Directive 67/548/EEC, Annex V, C.1.
Remarks: Based on data from similar materials

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 75 mg/l
Exposure time: 48 h
Method: OECD Test Guideline 202
Remarks: Based on data from similar materials
No toxicity at the limit of solubility.

Toxicity to algae : ErC50 (Selenastrum capricornutum (green algae)): > 22 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201
Remarks: No toxicity at the limit of solubility.

Ecotoxicology Assessment

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

Persistence and degradability

Ingredients:

Trimethoxyphenylsilane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 1 %
Exposure time: 28 d
Method: OECD Test Guideline 310
Remarks: Based on data from similar materials

Dimethylbis[(1-oxoneodecyl)oxy]stannane:

Biodegradability : Result: Not readily biodegradable.
Biodegradation: 3 %
Exposure time: 35 d

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Method: OECD Test Guideline 301F
Remarks: Based on data from similar materials

Methanol:

Biodegradability : Result: Readily biodegradable.
Biodegradation: 95 %
Exposure time: 20 d

Tetramethoxysilane:

Stability in water : Degradation half life: < 3 min pH: 7

Bioaccumulative potential

Ingredients:

Methanol:

Bioaccumulation : Species: Leuciscus idus (Golden orfe)
Bioconcentration factor (BCF): < 10

Partition coefficient: n-octanol/water : log Pow: -0.77

Tetramethoxysilane:

Partition coefficient: n-octanol/water : log Pow: -0.5

Mobility in soil

No data available

Other adverse effects

No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Resource Conservation and Recovery Act (RCRA) : This product has been evaluated for RCRA characteristics and does not meet the criteria of hazardous waste if discarded in its purchased form.

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.
Empty containers retain residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury and/or death.
If not otherwise specified: Dispose of as unused product.

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SECTION 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.

Domestic regulation

49 CFR

UN/ID/NA number : NA 1993
Proper shipping name : Combustible liquid, n.o.s.
(Alkoxysilane)
Class : CBL
Packing group : III
Labels : None
ERG Code : 128
Marine pollutant : no
Remarks : Above applies only to containers over 119 gallons or 450 liters. Not regulated if shipped in packages less than or equal to 119 gallons (450 liters).

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

| Ingredients | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|-------------|---------|--------------------|-----------------------------|
| Methanol | 67-56-1 | 5000 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 302 Extremely Hazardous Substances Threshold Planning Quantity

This material does not contain any components with a section 302 EHS TPQ.

SARA 311/312 Hazards : Flammable (gases, aerosols, liquids, or solids)
Reproductive toxicity
Specific target organ toxicity (single or repeated exposure)

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SARA 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.

US State Regulations

Pennsylvania Right To Know

| | |
|---|------------|
| Dimethyl siloxane, trimethylsiloxy-terminated | 63148-62-9 |
| Tetrapropyl orthosilicate | 682-01-9 |
| Trimethoxyphenylsilane | 2996-92-1 |
| Dimethylbis[(1-oxoneodecyl)oxy]stannane | 68928-76-7 |
| Methanol | 67-56-1 |

California Prop. 65

WARNING: This product can expose you to chemicals including Methanol, which is/are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

California List of Hazardous Substances

| | |
|---|------------|
| Dimethylbis[(1-oxoneodecyl)oxy]stannane | 68928-76-7 |
|---|------------|

California Permissible Exposure Limits for Chemical Contaminants

| | |
|---|------------|
| Dimethylbis[(1-oxoneodecyl)oxy]stannane | 68928-76-7 |
|---|------------|

The ingredients of this product are reported in the following inventories:

NZIoC : All ingredients listed or exempt.

REACH : For purchases from Dow Chemical EU legal entities, all ingredients are currently pre/registered or exempt under REACH. Please refer to section 1 for recommended uses. For purchases from non-EU Dow Chemical legal entities with the intention to export into EEA please contact your DC representative/local office.

TSCA : All chemical substances in this product are either listed on the TSCA Inventory or are in compliance with a TSCA Inventory exemption.

AICS : All ingredients listed or exempt.

IECSC : All ingredients listed or exempt.

ENCS/ISHL : All components are listed on ENCS/ISHL or exempted from inventory listing.

KECI : All ingredients listed, exempt or notified.

PICCS : All ingredients listed or exempt.

DSL : All chemical substances in this product comply with the CEPA 1999 and NSNR and are on or exempt from listing on the Canadian Domestic Substances List (DSL).

TCSI : All ingredients listed or exempt.

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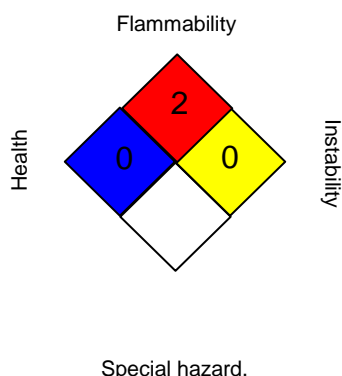
SDS Number:
671574-00011

Date of last issue: 08/14/2017
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SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS® IV:

| | | |
|-----------------|---|---|
| HEALTH | * | 3 |
| FLAMMABILITY | | 2 |
| PHYSICAL HAZARD | | 0 |

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard.

Full text of other abbreviations

| | | |
|-----------------|---|---|
| ACGIH | : | USA. ACGIH Threshold Limit Values (TLV) |
| ACGIH BEI | : | ACGIH - Biological Exposure Indices (BEI) |
| DCC OEL | : | Dow Chemical Guide |
| NIOSH REL | : | USA. NIOSH Recommended Exposure Limits |
| OSHA Z-1 | : | USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants |
| ACGIH / TWA | : | 8-hour, time-weighted average |
| ACGIH / STEL | : | Short-term exposure limit |
| DCC OEL / TWA | : | Time weighted average |
| NIOSH REL / TWA | : | Time-weighted average concentration for up to a 10-hour workday during a 40-hour workweek |
| NIOSH REL / ST | : | STEL - 15-minute TWA exposure that should not be exceeded at any time during a workday |
| OSHA Z-1 / TWA | : | 8-hour time weighted average |

AICS - Australian Inventory of Chemical Substances; 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; IECS - Inventory of Existing Chemical Substances in China; IMDG - Interna-

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tional Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

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

Revision Date : 03/09/2018

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

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 handling, 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.

US / Z8