SAFETY DATA SHEET

DOW CORNING® 838 SILICONE ADHESIVE/SEALANT

SECTION 1. IDENTIFICATION

Product name: DOW CORNING® 838 SILICONE ADHESIVE/SEALANT
Product code: 000000000002353547

Manufacturer or supplier's details
Company name of supplier: Dow Corning Corporation
Address: South Saginaw Road
Midland  Michigan  48686
Telephone: (989) 496-6000
Emergency telephone: 24 Hour Emergency Telephone : (989) 496-5900
CHEMTREC : (800) 424-9300

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

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Skin sensitization: Category 1

GHS Label element
Hazard pictograms:

Signal Word: Warning
Hazard Statements: H317 May cause an allergic skin reaction.
Precautionary Statements: Prevention:
P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray.
P272 Contaminated work clothing must not be allowed out of the workplace.
P280 Wear protective gloves.
Response:
P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.
P363 Wash contaminated clothing before reuse.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.
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Version 1.0  Revision Date: 02/02/2015  MSDS Number: 1197214-00001  Date of last issue: -  Date of first issue: 02/02/2015

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture
Chemical nature : Silicone elastomer

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous fumed silica</td>
<td>112945-52-5</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>Methyltrimethoxysilane</td>
<td>1185-55-3</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Diisoproxy di(ethoxyacet-oacetyl) titanate</td>
<td>27858-32-8</td>
<td>&gt;= 1 - &lt; 5</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
<tr>
<td>3-Mercaptopropyl trimethoxysilane</td>
<td>4420-74-0</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

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 advice.

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

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 if symptoms occur. 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.
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Notes to physician: Treat symptomatically and supportively.

SECTION 5. FIRE-FIGHTING MEASURES

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

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

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 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: Use personal protective equipment.
Follow safe handling advice and personal protective equipment recommendations.

Environmental precautions: Discharge into the environment must be avoided.
Prevent further leakage or spillage if safe to do so.
Retain and dispose of contaminated wash water.
Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up: Soak up with inert absorbent material.
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 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 labeled containers. Store in accordance with the particular national regulations.

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

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

**Ingredients with workplace control parameters**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amorphous fumed silica</td>
<td>112945-52-5</td>
<td>TWA (Dust)</td>
<td>20 Million particles per cubic foot (Silica)</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA (Dust)</td>
<td>80 mg/m3 / %SiO2 (Silica)</td>
<td>OSHA Z-3</td>
</tr>
<tr>
<td>Methyltrimethoxysilane</td>
<td>1185-55-3</td>
<td>TWA</td>
<td>6 mg/m3 (Silica)</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>13463-67-7</td>
<td>TWA (total dust)</td>
<td>15 mg/m3 (Titanium dioxide)</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 mg/m3 (Titanium dioxide)</td>
<td>ACGIH</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>250 ppm</td>
<td>ACGIH</td>
</tr>
</tbody>
</table>
Hazardous components without workplace control parameters

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disisopropoxy di(ethoxyacetoacetyl) titanate</td>
<td>27858-32-8</td>
</tr>
<tr>
<td>3-Mercaptopropyl trimethoxysilane</td>
<td>4420-74-0</td>
</tr>
</tbody>
</table>

Occupational exposure limits of decomposition products

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Value type (Form of exposure)</th>
<th>Control parameters / Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>250 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm 260 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>250 ppm 325 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm 260 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
<tr>
<td>Propan-2-ol</td>
<td>67-63-0</td>
<td>TWA</td>
<td>200 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>400 ppm</td>
<td>ACGIH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>500 ppm 1,225 mg/m³</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>400 ppm 980 mg/m³</td>
<td>OSHA Z-1</td>
</tr>
</tbody>
</table>

Biological occupational exposure limits

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Control parameters</th>
<th>Biological specimen</th>
<th>Sampling time</th>
<th>Permissible concentration</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>Methanol</td>
<td>Urine</td>
<td>End of shift (As soon as possible after exposure ceases)</td>
<td>15 mg/l</td>
<td>ACGIH BEI</td>
</tr>
</tbody>
</table>

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.

Hand protection
Material: Impervious 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. 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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>paste</td>
</tr>
<tr>
<td>Color</td>
<td>white</td>
</tr>
<tr>
<td>Odor</td>
<td>alcohol-like</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Property</td>
<td>Value</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>--------------------------------------------</td>
</tr>
<tr>
<td>pH</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flash point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not classified as a flammability hazard</td>
</tr>
<tr>
<td>Upper explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Lower explosion limit</td>
<td>No data available</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Relative vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>1.03</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td></td>
</tr>
<tr>
<td>Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>Autoignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity</td>
<td></td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>Not explosive</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>The substance or mixture is not classified as oxidizing.</td>
</tr>
<tr>
<td>Molecular weight</td>
<td>No data available</td>
</tr>
</tbody>
</table>

**SECTION 10. STABILITY AND REACTIVITY**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reactivity</td>
<td>Not classified as a reactivity hazard.</td>
</tr>
<tr>
<td>Chemical stability</td>
<td>Stable under normal conditions.</td>
</tr>
<tr>
<td>Possibility of hazardous reactions</td>
<td>Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents.</td>
</tr>
</tbody>
</table>
Conditions to avoid: Exposure to moisture.

Incompatible materials: Oxidizing agents, Water

Hazardous decomposition products:
- Contact with water or humid air: Methanol, Propan-2-ol
- Thermal decomposition: Formaldehyde

SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure
- 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: > 40 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

Ingredients:
Amorphous fumed silica:
- Acute oral toxicity: LD50 (Rat): > 20,000 mg/kg
  Assessment: The substance or mixture has no acute oral toxicity
  Remarks: Information taken from reference works and the literature.

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: vapor
Assessment: The substance or mixture has no acute inhalation 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

Diisopropoxy di(ethoxyacetoacetyl) titanate:
Acute oral toxicity: LD50 (Rat): 23,020 mg/kg
Acute inhalation toxicity: LC50 (Rat): > 173 mg/l
Exposure time: 6 h
Test atmosphere: vapor
Remarks: Based on data from similar materials

Acute dermal toxicity: LD50 (Rabbit): 12,870 mg/kg
Remarks: Based on data from similar materials

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

3-Mercaptopropyl trimethoxysilane:
Acute oral toxicity: LD50 (Rat): 0.73 ml/kg
Remarks: Based on test data

Methanol:
Acute oral toxicity: Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment
Acute inhalation toxicity: Acute toxicity estimate (Humans): 3 mg/l
Test atmosphere: vapor
Method: Expert judgment
Acute dermal toxicity: Acute toxicity estimate (Humans): 300 mg/kg
Method: Expert judgment

Skin corrosion/irritation
Not classified based on available information.
Ingredients:
Methyltrimethoxysilane:
Species: Rabbit
Result: No skin irritation
Remarks: Based on test data

Diisoproxy di(ethoxyacetoacetyl) titanate:
Species: Rabbit
Result: No skin irritation

Titanium dioxide:
Species: Rabbit
Result: No skin irritation

3-Mercaptopropyl trimethoxysilane:
Species: Rabbit
Result: No skin irritation
Remarks: Based on test data

Methanol:
Species: Rabbit
Result: No skin irritation

Serious eye damage/eye irritation
Not classified based on available information.

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

Diisoproxy di(ethoxyacetoacetyl) titanate:
Species: Rabbit
Result: Irritation to eyes, reversing within 21 days

Titanium dioxide:
Species: Rabbit
Result: No eye irritation

3-Mercaptopropyl trimethoxysilane:
Species: Rabbit
Result: No eye irritation
Remarks: Based on test data

Methanol:
Species: Rabbit
Result: No eye irritation

Respiratory or skin sensitization
Skin sensitization: May cause an allergic skin reaction.
Respiratory sensitization: Not classified based on available information.
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Ingredients:
Methyltrimethoxysilane:
Assessment: Probability or evidence of low to moderate skin sensitization rate in humans

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

Diisoproxy di(ethoxyacetoacetyl) titanate:
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Titanium dioxide:
Test Type: Local lymph node assay (LLNA)
Routes of exposure: Skin contact
Species: Mouse
Result: negative

3-Mercaptopropyl trimethoxysilane:
Assessment: Probability or evidence of skin sensitization in humans

Remarks: Causes sensitization.
Based on test data

Methanol:
Test Type: Maximization Test (GPMT)
Routes of exposure: Skin contact
Species: Guinea pig
Result: negative

Germ cell mutagenicity
Not classified based on available information.

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

Diisoproxy di(ethoxyacetoacetyl) titanate:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
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

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

Method: In vitro mammalian cell gene mutation test
Method: OECD Test Guideline 476
Result: negative

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

Carcinogenicity
Not classified based on available information.

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

Methanol:
Species: Mouse
Application Route: inhalation (vapor)
Exposure time: 18 Months
Method: OECD Test Guideline 453
Result: negative

IARC
Group 2B: Possibly carcinogenic to humans

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

**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**
Not classified based on available information.

**Ingredients:**

**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

**Diisoproxy di(ethoxyacetoacetyl) titanate:**
- **Effects on fetal development**: Test Type: Embryo-fetal development
  - Species: Rabbit
  - Application Route: Ingestion
  - Result: negative
  - Remarks: Based on data from similar materials

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

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

**STOT-single exposure**
Not classified based on available information.
Ingredients:

**Diisopropoxy di(ethoxyacetoacetyl) titanate:**
Assessment: May cause drowsiness or dizziness.

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

**STOT-repeated exposure**
Not classified based on available information.

Ingredients:

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

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

**Repeated dose toxicity**

Ingredients:

**Methyltrimethoxysilane:**
Species: Rat
Application Route: inhalation (vapor)
Remarks: Based on test data

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

**Diisopropoxy di(ethoxyacetoacetyl) titanate:**
Species: Rat
NOAEL: 86.7 mg/l
Application Route: inhalation (vapor)
Exposure time: 13 w
Remarks: Based on data from similar materials

**Titanium dioxide:**
Species: Rat
NOAEL: 24,000 mg/kg
Application Route: Ingestion
Exposure time: 28 d

Species: Rat
NOAEL: 10 mg/m3
Application Route: inhalation (dust/mist/fume)
Exposure time: 2 y
Remarks: The substance is inextricably bound in the product and therefore does not contribute to a dust inhalation hazard.
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Methanol:
Species: Rat
NOAEL: 1.06 mg/l
Application Route: inhalation (vapor)
Exposure time: 90 d

Aspiration toxicity
Not classified based on available information.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:
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)): > 100 mg/l
Exposure time: 72 h
Method: OECD Test Guideline 201

Toxicity to bacteria: EC50: > 100 mg/l
Method: OECD Test Guideline 209

Diisopropoxy di(ethoxyacetoacetyl) titanate:
Toxicity to fish: LC50 (Pimephales promelas (fathead minnow)): 11,130 mg/l
Exposure time: 96 h
Remarks: Based on data from similar materials

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): > 500 mg/l
Exposure time: 72 h
Remarks: Based on data from similar materials

Titanium dioxide:
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 magna (Water flea)): > 100 mg/l
Exposure time: 48 h

Toxicity to algae: EC50 (Skeletonema costatum (marine diatom)): > 10,000 mg/l
Exposure time: 72 h
Toxicity to bacteria: EC50: > 1,000 mg/l
Exposure time: 3 h
Method: OECD Test Guideline 209

3-Mercaptopropyl trimethoxysilane:
Toxicity to fish: LC50 (Danio rerio (zebra fish)): 439 mg/l
Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): 6.7 mg/l
Exposure time: 48 h

Toxicity to algae: ErC50 (Scenedesmus subspicatus): 931 mg/l
Exposure time: 72 h

Toxicity to bacteria: EC50: 440 mg/l

Ecotoxicology Assessment
Chronic aquatic toxicity: Toxic to aquatic life with long lasting effects.

Methanol:
Toxicity to fish: LC50 (Lepomis macrochirus (Bluegill sunfish)): 15,400 mg/l
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: OPPTS 850.5400

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

Toxicity to bacteria: EC50: 20,000 mg/l
Exposure time: 15 h

Persistence and degradability

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

Diisopropoxy di(ethoxyacetoacetyl) titanate:
Biodegradability: Result: Readily biodegradable.
Biodegradation: 66 %
Exposure time: 28 d
Method: OECD Test Guideline 301D
Remarks: Based on data from similar materials

3-Mercaptopropyl trimethoxysilane:
Biodegradability: Result: Not readily biodegradable. 
Biodegradation: 51 %
Exposure time: 28 d
Method: OECD Test Guideline 301

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

Bioaccumulative potential

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

Diisopropoxy di(ethoxyacetoacetyl) titanate:
Partition coefficient: n-octanol/water: log Pow: 0.05

Methanol:
Bioaccumulation: Species: Leuciscus idus (Golden orfe) 
Bioconcentration factor (BCF): < 10
Partition coefficient: n-octanol/water: log Pow: -0.77

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: Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal.
SECTION 14. TRANSPORT INFORMATION

International Regulation

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
Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know

CERCLA Reportable Quantity

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>CAS-No.</th>
<th>Component RQ (lbs)</th>
<th>Calculated product RQ (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>5000</td>
<td>*</td>
</tr>
<tr>
<td>Butan-1-ol</td>
<td>71-36-3</td>
<td>5000</td>
<td>*</td>
</tr>
</tbody>
</table>

*: 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 311/312 Hazards : Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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.

Pennsylvania Right To Know

<table>
<thead>
<tr>
<th></th>
<th>CAS-Number</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl siloxane, trimethoxysilyl-terminated</td>
<td>Not Assigned</td>
<td>70 - 90 %</td>
<td></td>
</tr>
<tr>
<td>Dimethyl Siloxane, Dimethylvinylsiloxo-terminated</td>
<td>68083-19-2</td>
<td>10 - 20 %</td>
<td></td>
</tr>
<tr>
<td>Amorphous fumed silica</td>
<td>112945-52-5</td>
<td>5 - 10 %</td>
<td></td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>0.1 - 1 %</td>
<td></td>
</tr>
</tbody>
</table>

New Jersey Right To Know
<table>
<thead>
<tr>
<th>Ingredient Description</th>
<th>CAS Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimethyl siloxane, trimethoxysilyl-terminated</td>
<td>Not Assigned</td>
<td>70 - 90 %</td>
</tr>
<tr>
<td>Dimethyl Siloxane, Dimethylvinylsilox-terminated</td>
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<td>10 - 20 %</td>
</tr>
<tr>
<td>Amorphous fumed silica</td>
<td>112945-52-5</td>
<td>5 - 10 %</td>
</tr>
<tr>
<td>Methyltrimethoxysilane</td>
<td>1185-55-3</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>Dibisopropoxy di(ethoxyacetoxycetyl) titanate</td>
<td>27858-32-8</td>
<td>1 - 5 %</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1</td>
<td>0.1 - 1 %</td>
</tr>
</tbody>
</table>

**California Prop 65**

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Methanol

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

- **NZIoC**: All ingredients listed or exempt.
- **REACH**: All ingredients (pre-)registered or exempt.
- **TSCA**: All chemical substances in this material are included on or exempted from listing on the TSCA Inventory of Chemical Substances.
- **AICS**: All ingredients listed or exempt.
- **IECSC**: All ingredients listed or exempt.
- **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).
SECTION 16. OTHER INFORMATION

Further information

NFPA: 
Health: 2 
Flammability: 0

HMIS III:
HEALTH: 2
FLAMMABILITY: 1
PHYSICAL HAZARD: 0

Full text of other abbreviations

ACGIH: USA. ACGIH Threshold Limit Values (TLV)
ACGIH BEI: ACGIH - Biological Exposure Indices (BEI)
DCC OEL: Dow Corning Guide
NIOSH REL: USA. NIOSH Recommended Exposure Limits
OSHA Z-1: USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
OSHA Z-3: USA. Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
ACGIH / TWA: 8-hour, time-weighted average
ACGIH / STEL: Short-term exposure limit
DCC OEL / TWA: Dow Corning Guide
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
OSHA Z-3 / TWA: 8-hour time weighted average

Sources of key data used to compile the Material Safety Data Sheet:

Revision Date: 02/02/2015

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, in- 
cluding an assessment of the appropriateness of the SDS material in the user's end product, if 
applicable.

US / Z8