



**Revision Date:** 28.05.2020

**Version:** 4.0

**Product name:** SILASTIC™ RTV-3481 Mould-Making Base

**Date of last issue:** 28.08.2018

**Print Date:** 08.09.2020

DOW CHEMICAL COMPANY LIMITED encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

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## **SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**

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### **1.1 Product identifier**

**Product name:** SILASTIC™ RTV-3481 Mould-Making Base

### **1.2 Relevant identified uses of the substance or mixture and uses advised against**

**Identified uses:** Polymer

### **1.3 Details of the supplier of the safety data sheet**

#### **COMPANY IDENTIFICATION**

INDUSTRIAL PLASTERS LTD  
63 NETHERSTREET  
BROMHAM  
CHIPPENHAM  
WILTSHIRE  
SN15 2DP

**Customer Information Number:**

+44 (0) 1380 850616

[info@industrialplasters.com](mailto:info@industrialplasters.com)

**Fax:**

+44 (0) 1380 859638

### **1.4 EMERGENCY TELEPHONE NUMBER**

**24-Hour Emergency Contact:** 0031 115 694 982

**Local Emergency Contact:** 00 31 115 69 4982

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## **SECTION 2: HAZARDS IDENTIFICATION**

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### **2.1 Classification of the substance or mixture**

#### **Classification according to Regulation (EC) No 1272/2008:**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

### **2.2 Label elements**

#### **Labelling according to Regulation (EC) No 1272/2008:**

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2008.

**Supplemental information**

EUH210 Safety data sheet available on request.

**2.3 Other hazards**

This product contains dodecamethylcyclohexasiloxane (D6) that has been identified by the Member State Committee of ECHA as fulfilling the vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See Section 12 for additional information.

This product contains octamethylcyclotetrasiloxane (D4) that has been identified by the Member State Committee of ECHA as fulfilling the PBT and vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See Section 12 for additional information.

This product contains decamethylcyclopentasiloxane (D5) that has been identified by the Member State Committee of ECHA as fulfilling the vPvB criteria laid down in Annex XIII to Regulation (EC) No 1907/2006. See Section 12 for additional information.

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## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

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**Chemical nature:** Silicone elastomer**3.2 Mixtures**

This product is a mixture.

CASRN / EC-No. / Index-No.	REACH Registration Number	Concentration	Component	Classification: REGULATION (EC) No 1272/2008
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PBT and vPvB substance

<b>CASRN</b> 540-97-6 <b>EC-No.</b> 208-762-8 <b>Index-No.</b> —	—	>= 0.18 - <= 0.22 %	Dodecamethyl cyclohexasiloxane	Not classified
<b>CASRN</b> 556-67-2 <b>EC-No.</b> 209-136-7 <b>Index-No.</b> 014-018-00-1	—	>= 0.11 - <= 0.16 %	octamethylcyclotetrasiloxane	Flam. Liq. - 3 - H226 Repr. - 2 - H361f Aquatic Chronic - 4 - H413
<b>CASRN</b> 541-02-6 <b>EC-No.</b> 208-764-9 <b>Index-No.</b> —	—	>= 0.11 - <= 0.16 %	Decamethylcyclopentasiloxane	Not classified

Substances with a workplace exposure limit

<b>CASRN</b> 14940-68-2	–	>= 9.0 - <= 13.0 %	Zircon	Not classified
<b>EC-No.</b> 239-019-6	–	–	–	–
<b>Index-No.</b> –	–	–	–	–

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: FIRST AID MEASURES

### 4.1 Description of first aid measures

#### General advice:

If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**Inhalation:** Move person to fresh air and keep comfortable for breathing; consult a physician.

**Skin contact:** Wash off with plenty of water.

**Eye contact:** Flush eyes thoroughly with water for several minutes. Remove contact lenses after the initial 1-2 minutes and continue flushing for several additional minutes. If effects occur, consult a physician, preferably an ophthalmologist.

**Ingestion:** No emergency medical treatment necessary.

### 4.2 Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

### 4.3 Indication of any immediate medical attention and special treatment needed

**Notes to physician:** No specific antidote. Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

## SECTION 5: FIREFIGHTING MEASURES

### 5.1 Extinguishing media

**Suitable extinguishing media:** Water spray. Alcohol-resistant foam. Carbon dioxide (CO<sub>2</sub>). Dry chemical.

**Unsuitable extinguishing media:** None known..

### 5.2 Special hazards arising from the substance or mixture

**Hazardous combustion products:** Carbon oxides. Silicon oxides.

**Unusual Fire and Explosion Hazards:** Exposure to combustion products may be a hazard to health..

### 5.3 Advice for firefighters

**Fire Fighting Procedures:** Use water spray to cool unopened containers.. Evacuate area.. Collect contaminated fire extinguishing water separately. This must not be discharged into drains.. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Remove undamaged containers from fire area if it is safe to do so.

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

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## SECTION 6: ACCIDENTAL RELEASE MEASURES

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**6.1 Personal precautions, protective equipment and emergency procedures:** Use personal protective equipment. Follow safe handling advice and personal protective equipment recommendations.

**6.2 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.

**6.3 Methods and materials for containment and cleaning up:** Soak up with inert absorbent material. Clean up remaining materials from spill with suitable absorbant. Local or national regulations may apply to releases and disposal of this material, as well as those materials and items employed in the cleanup of releases. You will need to determine which regulations are applicable. For large spills, provide dyking or other appropriate containment to keep material from spreading. If dyked material can be pumped, store recovered material in appropriate container.

**6.4 Reference to other sections:**

See sections: 7, 8, 11, 12 and 13.

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## SECTION 7: HANDLING AND STORAGE

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**7.1 Precautions for safe handling:** Avoid inhalation of vapour or mist. Avoid contact with eyes. Do not swallow. Avoid prolonged or repeated contact with skin. Take care to prevent spills, waste and minimize release to the environment. Handle in accordance with good industrial hygiene and safety practice. CONTAINERS MAY BE HAZARDOUS WHEN EMPTY. Since emptied containers retain product residue follow all (M)SDS and label warnings even after container is emptied. Use only with adequate ventilation. See Engineering measures under EXPOSURE CONTROLS/PERSONAL PROTECTION section.

**7.2 Conditions for safe storage, including any incompatibilities:** Keep in properly labelled containers. Store locked up. Store in accordance with the particular national regulations.

Do not store with the following product types: Strong oxidizing agents.  
Unsuitable materials for containers: None known.

**7.3 Specific end use(s):** See the technical data sheet on this product for further information.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1 Control parameters

If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value
octamethylcyclotetrasiloxane	US WEEL	TWA	10 ppm
Decamethylcyclopentasiloxane	US WEEL	TWA	10 ppm
Zircon	ACGIH	TWA	5 mg/m3 , Zirconium
	Further information: A4: Not classifiable as a human carcinogen		
	ACGIH	STEL	10 mg/m3 , Zirconium
	Further information: A4: Not classifiable as a human carcinogen		
	GB EH40	TWA	5 mg/m3 , Zirconium
	GB EH40	STEL	10 mg/m3 , Zirconium

### Recommended monitoring procedures

Monitoring of the concentration of substances in the breathing zone of workers or in the general workplace may be required to confirm compliance with the Occupational Exposure Limits and the adequacy of exposure controls. For some substances biological monitoring may also be appropriate. Validated exposure measurement methods should be applied by a competent person and samples should be analysed by an accredited laboratory.

Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy); European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents); European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents). Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

Examples of sources of recommended exposure measurement methods are given below or contact the supplier. Further national methods may be available.

National Institute of Occupational Safety and Health (NIOSH), USA: Manual of Analytical Methods. Occupational Safety and Health Administration (OSHA), USA: Sampling and Analytical Methods. Health and Safety Executive (HSE), United Kingdom: Methods for the Determination of Hazardous Substances.

Institut für Arbeitsschutz Deutschen Gesetzlichen Unfallversicherung (IFA), Germany.

L'Institut National de Recherche et de Sécurité, (INRS), France.

### Derived No Effect Level

Dodecamethyl cyclohexasiloxane

#### Workers

Acute systemic effects		Acute local effects		Long-term systemic effects		Long-term local effects	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	n.a.	n.a.	6.1 mg/m3	n.a.	11 mg/m3	n.a.	1.22 mg/m3

#### Consumers

Acute systemic effects			Acute local effects		Long-term systemic effects			Long-term local effects	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation

n.a.	n.a.	1.7 mg/kg bw/day	n.a.	1.5 mg/m3	n.a.	2.7 mg/m3	1.7 mg/kg bw/day	n.a.	0.3 mg/m3
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octamethylcyclotetrasiloxane

**Workers**

<b>Acute systemic effects</b>		<b>Acute local effects</b>		<b>Long-term systemic effects</b>		<b>Long-term local effects</b>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	73 mg/m3	n.a.	73 mg/m3	n.a.	73 mg/m3	n.a.	73 mg/m3

**Consumers**

<b>Acute systemic effects</b>			<b>Acute local effects</b>		<b>Long-term systemic effects</b>			<b>Long-term local effects</b>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	13 mg/m3	3.7 mg/kg bw/day	n.a.	13 mg/m3	n.a.	13 mg/m3	3.7 mg/kg bw/day	n.a.	13 mg/m3

Decamethylcyclopentasiloxane

**Workers**

<b>Acute systemic effects</b>		<b>Acute local effects</b>		<b>Long-term systemic effects</b>		<b>Long-term local effects</b>	
Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation	Dermal	Inhalation
n.a.	97.3 mg/m3	n.a.	24.2 mg/m3	n.a.	97.3 mg/m3	n.a.	24.2 mg/m3

**Consumers**

<b>Acute systemic effects</b>			<b>Acute local effects</b>		<b>Long-term systemic effects</b>			<b>Long-term local effects</b>	
Dermal	Inhalation	Oral	Dermal	Inhalation	Dermal	Inhalation	Oral	Dermal	Inhalation
n.a.	17.3 mg/m3	5 mg/kg bw/day	n.a.	4.3 mg/m3	n.a.	17.3 mg/m3	5 mg/kg bw/day	n.a.	4.3 mg/m3

**Predicted No Effect Concentration**

Dodecamethyl cyclohexasiloxane

<b>Compartment</b>	<b>PNEC</b>
Fresh water sediment	2.826 mg/kg
Marine sediment	0.282 mg/kg
Soil	3.336 mg/kg
Sewage treatment plant	> 1.0 mg/l

octamethylcyclotetrasiloxane

<b>Compartment</b>	<b>PNEC</b>
Fresh water	0.00044 mg/l
Marine water	0.000044 mg/l
Fresh water sediment	0.64 mg/kg
Marine sediment	0.064 mg/kg
Soil	0.13 mg/kg
Sewage treatment plant	> 10 mg/l

## Decamethylcyclopentasiloxane

Compartment	PNEC
Fresh water	> 0.0012 mg/l
Marine water	> 0.00012 mg/l
Fresh water sediment	2.4 mg/kg
Marine sediment	0.24 mg/kg
Soil	1.1 mg/kg
Sewage treatment plant	> 10 mg/l

**8.2 Exposure controls**

**Engineering controls:** Use local exhaust ventilation, or other engineering controls to maintain airborne levels below exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, general ventilation should be sufficient for most operations. Local exhaust ventilation may be necessary for some operations.

**Individual protection measures**

**Eye/face protection:** Use safety glasses (with side shields). Safety glasses (with side shields) should be consistent with EN 166 or equivalent.

**Skin protection**

**Hand protection:** Use gloves chemically resistant to this material when prolonged or frequently repeated contact could occur. Use chemical resistant gloves classified under Standard EN374: Protective gloves against chemicals and micro-organisms. Examples of preferred glove barrier materials include: Butyl rubber. Neoprene. Nitrile/butadiene rubber ("nitrile" or "NBR"). Ethyl vinyl alcohol laminate ("EVAL"). Polyvinyl alcohol ("PVA"). Polyvinyl chloride ("PVC" or "vinyl"). Viton. Examples of acceptable glove barrier materials include: Natural rubber ("latex"). When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374) is recommended. When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374) is recommended. Glove thickness alone is not a good indicator of the level of protection a glove provides against a chemical substance as this level of protection is also highly dependent on the specific composition of the material that the glove is fabricated from. The thickness of the glove must, depending on model and type of material, generally be more than 0.35 mm to offer sufficient protection for prolonged and frequent contact with the substance. As an exception to this general rule it is known that multilayer laminate gloves may offer prolonged protection at thicknesses less than 0.35 mm. Other glove materials with a thickness of less than 0.35 mm may offer sufficient protection when only brief contact is expected. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

**Other protection:** Wear clean, body-covering clothing.

**Respiratory protection:** Respiratory protection should be worn when there is a potential to exceed the exposure limit requirements or guidelines. If there are no applicable exposure limit requirements or guidelines, wear respiratory protection when adverse effects, such as respiratory irritation or discomfort have been experienced, or where indicated by your risk

assessment process. For most conditions no respiratory protection should be needed; however, if discomfort is experienced, use an approved air-purifying respirator. Use the following CE approved air-purifying respirator: Organic vapor cartridge, type A (boiling point >65 °C, meeting standard EN 14387).

#### **Environmental exposure controls**

See SECTION 7: Handling and storage and SECTION 13: Disposal considerations for measures to prevent excessive environmental exposure during use and waste disposal.

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## **SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**

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### **9.1 Information on basic physical and chemical properties**

#### **Appearance**

<b>Physical state</b>	viscous liquid
<b>Color</b>	off-white
<b>Odor</b>	none
<b>Odor Threshold</b>	No data available
<b>pH</b>	No data available
<b>Melting point/range</b>	No data available
<b>Freezing point</b>	No data available
<b>Boiling point (760 mmHg)</b>	> 35 °C
<b>Flash point</b>	<b>closed cup</b> >100.0 °C
<b>Evaporation Rate (Butyl Acetate = 1)</b>	No data available
<b>Flammability (solid, gas)</b>	Not applicable
<b>Flammability (liquids)</b>	Not applicable
<b>Lower explosion limit</b>	No data available
<b>Upper explosion limit</b>	No data available
<b>Vapor Pressure</b>	No data available
<b>Relative Vapor Density (air = 1)</b>	No data available
<b>Relative Density (water = 1)</b>	1.213
<b>Water solubility</b>	No data available
<b>Partition coefficient: n-octanol/water</b>	No data available
<b>Auto-ignition temperature</b>	No data available
<b>Decomposition temperature</b>	No data available
<b>Dynamic Viscosity</b>	34,000 mPa.s
<b>Kinematic Viscosity</b>	No data available
<b>Explosive properties</b>	Not explosive
<b>Oxidizing properties</b>	The substance or mixture is not classified as oxidizing.
<b>9.2 Other information</b>	
<b>Molecular weight</b>	No data available
<b>Particle size</b>	Not applicable

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

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## **SECTION 10: STABILITY AND REACTIVITY**

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**10.1 Reactivity:** Not classified as a reactivity hazard.

**10.2 Chemical stability:** Stable under normal conditions.

**10.3 Possibility of hazardous reactions:** Can react with strong oxidizing agents.

**10.4 Conditions to avoid:** None known.

**10.5 Incompatible materials:** Oxidizing agents

**10.6 Hazardous decomposition products:**

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

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## **SECTION 11: TOXICOLOGICAL INFORMATION**

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

### **11.1 Information on toxicological effects**

#### **Information on likely routes of exposure**

Inhalation, Eye contact, Skin contact, Ingestion.

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

#### **Acute oral toxicity**

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

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

Based on information for component(s):

LD50, > 5,000 mg/kg Estimated.

#### **Information for components:**

##### **Dodecamethyl cyclohexasiloxane**

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

##### **Octamethylcyclotetrasiloxane**

LD50, Rat, male, > 4,800 mg/kg No deaths occurred at this concentration.

##### **Decamethylcyclopentasiloxane**

LD50, Rat, male and female, > 24,134 mg/kg

##### **Zircon**

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Single dose oral LD50 has not been determined.

**Acute dermal toxicity**

Prolonged skin contact is unlikely to result in absorption of harmful amounts.

As product: The dermal LD50 has not been determined.

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

**Information for components:****Dodecamethyl cyclohexasiloxane**

LD50, Rabbit, male and female, > 2,000 mg/kg

**octamethylcyclotetrasiloxane**

LD50, Rat, male and female, > 2,400 mg/kg No deaths occurred at this concentration.

**Decamethylcyclopentasiloxane**

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

**Zircon**

The dermal LD50 has not been determined.

**Acute inhalation toxicity**

No adverse effects are anticipated from single exposure to vapor. Excessive exposure may cause irritation to upper respiratory tract (nose and throat).

As product: The LC50 has not been determined.

**Information for components:****Dodecamethyl cyclohexasiloxane**

The LC50 has not been determined.

**octamethylcyclotetrasiloxane**

LC50, Rat, male and female, 4 Hour, dust/mist, 36 mg/l OECD Test Guideline 403

**Decamethylcyclopentasiloxane**

LC50, Rat, male and female, 4 Hour, dust/mist, 8.67 mg/l

**Zircon**

The LC50 has not been determined.

**Skin corrosion/irritation**

Based on information for component(s):

Brief contact is essentially nonirritating to skin.

**Information for components:****Dodecamethyl cyclohexasiloxane**

Essentially nonirritating to skin.

**octamethylcyclotetrasiloxane**

Brief contact is essentially nonirritating to skin.

**Decamethylcyclopentasiloxane**

Prolonged contact is essentially nonirritating to skin.

**Zircon**

Brief contact may cause skin irritation with local redness.

**Serious eye damage/eye irritation**

Based on information for component(s):

May cause slight temporary eye irritation.

**Information for components:****Dodecamethyl cyclohexasiloxane**

May cause slight temporary eye irritation.

Corneal injury is unlikely.

**octamethylcyclotetrasiloxane**

Essentially nonirritating to eyes.

**Decamethylcyclopentasiloxane**

Essentially nonirritating to eyes.

**Zircon**

May cause eye irritation.

**Sensitization**

For skin sensitization:

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

For respiratory sensitization:

No relevant data found.

**Information for components:****Dodecamethyl cyclohexasiloxane**

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

For respiratory sensitization:

No relevant data found.

**octamethylcyclotetrasiloxane**

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

For respiratory sensitization:

No relevant data found.

**Decamethylcyclopentasiloxane**

Did not demonstrate the potential for contact allergy in mice.

For respiratory sensitization:  
No relevant data found.

**Zircon**

For skin sensitization:  
No data available

For respiratory sensitization:  
No data available

**Specific Target Organ Systemic Toxicity (Single Exposure)**

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

**Information for components:****Dodecamethyl cyclohexasiloxane**

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

**octamethylcyclotetrasiloxane**

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

**Decamethylcyclopentasiloxane**

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

**Zircon**

Available data are inadequate to determine single exposure specific target organ toxicity.

**Aspiration Hazard**

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

**Information for components:****Dodecamethyl cyclohexasiloxane**

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

**octamethylcyclotetrasiloxane**

May be harmful if swallowed and enters airways.

**Decamethylcyclopentasiloxane**

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

**Zircon**

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

**Chronic toxicity (represents longer term exposures with repeated dose resulting in chronic/delayed effects - no immediate effects known unless otherwise noted)****Specific Target Organ Systemic Toxicity (Repeated Exposure)**

No relevant data found.

**Information for components:****Dodecamethyl cyclohexasiloxane**

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

**octamethylcyclotetrasiloxane**

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

Kidney.

Liver.

Respiratory tract.

Female reproductive organs.

**Decamethylcyclopentasiloxane**

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

**Zircon**

No relevant data found.

**Carcinogenicity**

No relevant data found.

**Information for components:****Dodecamethyl cyclohexasiloxane**

No relevant data found.

**octamethylcyclotetrasiloxane**

Results from a 2 year repeated vapour inhalation exposure study to rats of octamethylcyclotetrasiloxane (D4) indicate effects (benign uterine adenomas) in the uterus of female animals. This finding occurred at the highest exposure dose (700 ppm) only. Studies to date have not demonstrated if these effects occur through pathways that are relevant to humans. Repeated exposure in rats to D4 resulted in protoporphyrin accumulation in the liver. Without knowledge of the specific mechanism leading to the protoporphyrin accumulation the relevance of this finding to humans is unknown.

**Decamethylcyclopentasiloxane**

Results from a 2 year repeated vapour inhalation exposure study to rats of decamethylcyclopentasiloxane (D5) indicate effects (uterine endometrial tumors) in female animals. This finding occurred at the highest exposure dose (160 ppm) only. Studies to date have not demonstrated if this effect occurs through a pathway that is relevant to humans.

**Zircon**

No data available.

**Teratogenicity**

No relevant data found.

**Information for components:****Dodecamethyl cyclohexasiloxane**

No relevant data found.

**octamethylcyclotetrasiloxane**

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

**Decamethylcyclopentasiloxane**

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

**Zircon**

No data available.

**Reproductive toxicity**

In animal studies on component(s), effects on reproduction were seen only at doses that produced significant toxicity to the parent animals. Contains component(s) which have interfered with fertility in animal studies.

**Information for components:****Dodecamethyl cyclohexasiloxane**

No relevant data found.

**octamethylcyclotetrasiloxane**

In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals. In animal studies, has been shown to interfere with fertility.

**Decamethylcyclopentasiloxane**

In animal studies, did not interfere with reproduction.

**Zircon**

No data available.

**Mutagenicity**

In vitro genetic toxicity studies were negative for component(s) tested.

**Information for components:****Dodecamethyl cyclohexasiloxane**

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

**octamethylcyclotetrasiloxane**

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

**Decamethylcyclopentasiloxane**

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

**Zircon**

No data available

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**SECTION 12: ECOLOGICAL INFORMATION**

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

**12.1 Toxicity**

**Dodecamethyl cyclohexasiloxane****Acute toxicity to algae/aquatic plants**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, > 0.002 mg/l

**Octamethylcyclotetrasiloxane****Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

LC50, *Oncorhynchus mykiss* (rainbow trout), flow-through, 96 Hour, > 0.022 mg/l

No toxicity at the limit of solubility

LC50, *Cyprinodon variegatus* (sheepshead minnow), flow-through, 14 d, > 0.0063 mg/l

**Acute toxicity to aquatic invertebrates**

No toxicity at the limit of solubility

EC50, *Mysidopsis bahia* (opossum shrimp), flow-through test, 96 Hour, > 0.0091 mg/l

No toxicity at the limit of solubility

EC50, *Daphnia magna* (Water flea), flow-through test, 48 Hour, > 0.015 mg/l

**Acute toxicity to algae/aquatic plants**

No toxicity at the limit of solubility

ErC50, *Pseudokirchneriella subcapitata* (green algae), 72 Hour, Growth rate, > 0.022 mg/l

**Chronic toxicity to fish**

No toxicity at the limit of solubility

NOEC, *Oncorhynchus mykiss* (rainbow trout), 93 d, >= 0.0044 mg/l

**Chronic toxicity to aquatic invertebrates**

No toxicity at the limit of solubility

NOEC, *Daphnia magna* (Water flea), 21 d, >= 0.0079 mg/l

**Decamethylcyclopentasiloxane****Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

No toxicity at the limit of solubility

LC50, *Oncorhynchus mykiss* (rainbow trout), 96 Hour, > 16 µg/l, OECD Test Guideline 204 or Equivalent

**Acute toxicity to aquatic invertebrates**

No toxicity at the limit of solubility

EC50, *Daphnia magna*, 48 Hour, > 2.9 mg/l, OECD Test Guideline 202 or Equivalent

**Acute toxicity to algae/aquatic plants**

No toxicity at the limit of solubility

ErC50, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate, > 0.012 mg/l

No toxicity at the limit of solubility

NOEC, *Pseudokirchneriella subcapitata* (green algae), 96 Hour, Growth rate, 0.012 mg/l

**Chronic toxicity to fish**

No toxicity at the limit of solubility

LC50, *Oncorhynchus mykiss* (rainbow trout), 14 d, > 16 mg/l

No toxicity at the limit of solubility  
NOEC, Oncorhynchus mykiss (rainbow trout), 45 d, >= 0.017 mg/l  
No toxicity at the limit of solubility  
NOEC, Oncorhynchus mykiss (rainbow trout), 90 d, >= 0.014 mg/l

**Chronic toxicity to aquatic invertebrates**

NOEC, Daphnia magna, 21 d, 0.015 mg/l

**Toxicity to soil-dwelling organisms**

This product does not have any known adverse effect on the soil organisms tested.  
NOEC, Eisenia fetida (earthworms), >= 76 mg/kg

**Zircon****Acute toxicity to fish**

Not expected to be acutely toxic to aquatic organisms.

**Acute toxicity to aquatic invertebrates**

Based on data from similar materials

EC50, Daphnia magna (Water flea), 48 Hour, > 100 mg/l

**Acute toxicity to algae/aquatic plants**

Based on data from similar materials

NOEC, Chlorella vulgaris (Fresh water algae), 15 d, > 200 mg/l

**12.2 Persistence and degradability****Dodecamethyl cyclohexasiloxane**

**Biodegradability:** Based on stringent OECD test guidelines, this material cannot be considered as readily biodegradable; however, these results do not necessarily mean that the material is not biodegradable under environmental conditions.

10-day Window: Fail

**Biodegradation:** 4.5 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 301B

**octamethylcyclotetrasiloxane**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

**Biodegradation:** 3.7 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 310

**Stability in Water (1/2-life)**

Hydrolysis, DT50, 69.3 - 144 Hour, pH 7, Half-life Temperature 24.6 °C, OECD Test Guideline 111

**Decamethylcyclopentasiloxane**

**Biodegradability:** Material is expected to biodegrade very slowly (in the environment). Fails to pass OECD/EEC tests for ready biodegradability.

10-day Window: Not applicable

**Biodegradation:** 0.14 %

**Exposure time:** 28 d

**Method:** OECD Test Guideline 310

#### **Zircon**

**Biodegradability:** Biodegradation is not applicable.

#### **12.3 Bioaccumulative potential**

##### **Dodecamethyl cyclohexasiloxane**

**Bioaccumulation:** Bioconcentration potential is low (BCF less than 100 or log Pow greater than 7).

**Partition coefficient: n-octanol/water(log Pow):** 8.87

##### **octamethylcyclotetrasiloxane**

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

**Partition coefficient: n-octanol/water(log Pow):** 6.49 Measured

**Bioconcentration factor (BCF):** 12,400 Pimephales promelas (fathead minnow) Measured

##### **Decamethylcyclopentasiloxane**

**Bioaccumulation:** Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Pow between 3 and 5).

**Partition coefficient: n-octanol/water(log Pow):** 5.2 Measured

**Bioconcentration factor (BCF):** 2,010 Fish Estimated.

#### **Zircon**

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

#### **12.4 Mobility in soil**

##### **Dodecamethyl cyclohexasiloxane**

Potential for mobility in soil is very high (Koc between 0 and 50).

##### **octamethylcyclotetrasiloxane**

Expected to be relatively immobile in soil (Koc > 5000).

##### **Decamethylcyclopentasiloxane**

Expected to be relatively immobile in soil (Koc > 5000).

**Partition coefficient (Koc):** > 5000 Estimated.

#### **Zircon**

No relevant data found.

#### **12.5 Results of PBT and vPvB assessment**

##### **Dodecamethyl cyclohexasiloxane**

Dodecamethyl cyclohexasiloxane (D6) meets the current REACh Annex XIII criteria for vPvB. However, D6 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D6 is not biomagnifying in aquatic and terrestrial food webs. D6 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D6 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

##### **octamethylcyclotetrasiloxane**

Octamethylcyclotetrasiloxane (D4) meets the current REACH Annex XIII criteria for PBT and vPvB. In Canada, D4 has been assessed and deemed to meet the PiT criteria. However, D4 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D4 is not biomagnifying in aquatic and terrestrial food webs. D4 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D4 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms.

#### **Decamethylcyclopentasiloxane**

Decamethylcyclopentasiloxane (D5) meets the current REACH Annex XIII criteria for vPvB. However, D5 does not behave similarly to known PBT/vPvB substances. The weight of scientific evidence from field studies shows that D5 is not biomagnifying in aquatic and terrestrial food webs. D5 in air will degrade by reaction with naturally occurring hydroxyl radicals in the atmosphere. Any D5 in air that does not degrade by reaction with hydroxyl radicals is not expected to deposit from the air to water, to land, or to living organisms. Based on an independent scientific panel of experts, the Canadian Minister of the Environment has concluded that "D5 is not entering the environment in a quantity or concentration or under conditions that have or may have an immediate or long-term harmful effect on the environment or its biological diversity, or that constitute or may constitute a danger to the environment on which life depends".

#### **Zircon**

This substance has not been assessed for persistence, bioaccumulation and toxicity (PBT).

#### **12.6 Other adverse effects**

#### **Dodecamethyl cyclohexasiloxane**

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

#### **Octamethylcyclotetrasiloxane**

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

#### **Decamethylcyclopentasiloxane**

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

#### **Zircon**

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

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## **SECTION 13: DISPOSAL CONSIDERATIONS**

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#### **13.1 Waste treatment methods**

Do not dump into any sewers, on the ground, or into any body of water. This product, when being disposed of in its unused and uncontaminated state should be treated as a hazardous waste according to EC Directive 2008/98/EC. Any disposal practices must be in compliance with all national and provincial laws and any municipal or local by-laws governing hazardous waste. For used, contaminated and residual materials additional evaluations may be required.

The definitive assignment of this material to the appropriate EWC group and thus its proper EWC code will depend on the use that is made of this material. Contact the authorized waste disposal services.

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## **SECTION 14: TRANSPORT INFORMATION**

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**Classification for ROAD and Rail transport (ADR/RID):**

<b>14.1 UN number</b>	Not applicable
<b>14.2 UN proper shipping name</b>	Not regulated for transport
<b>14.3 Transport hazard class(es)</b>	Not applicable
<b>14.4 Packing group</b>	Not applicable
<b>14.5 Environmental hazards</b>	Not considered environmentally hazardous based on available data.
<b>14.6 Special precautions for user</b>	No data available.

**Classification for SEA transport (IMO-IMDG):**

<b>14.1 UN number</b>	Not applicable
<b>14.2 UN proper shipping name</b>	Not regulated for transport
<b>14.3 Transport hazard class(es)</b>	Not applicable
<b>14.4 Packing group</b>	Not applicable
<b>14.5 Environmental hazards</b>	Not considered as marine pollutant based on available data.
<b>14.6 Special precautions for user</b>	No data available.
<b>14.7 Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code</b>	Consult IMO regulations before transporting ocean bulk

**Classification for AIR transport (IATA/ICAO):**

<b>14.1 UN number</b>	Not applicable
<b>14.2 UN proper shipping name</b>	Not regulated for transport
<b>14.3 Transport hazard class(es)</b>	Not applicable
<b>14.4 Packing group</b>	Not applicable
<b>14.5 Environmental hazards</b>	Not applicable
<b>14.6 Special precautions for user</b>	No data available.

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

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## SECTION 15: REGULATORY INFORMATION

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### 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

#### **REACH Regulation (EC) No 1907/2006**

This product contains only components that have been either registered, are exempt from registration, are regarded as registered or are not subject to registration according to Regulation (EC) No. 1907/2006 (REACH)., The aforementioned indications of the REACH registration status are provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. It is the buyer's/user's responsibility to ensure that his/her understanding of the regulatory status of this product is correct.

#### **REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, preparations and articles (Annex XVII)**

Conditions of restriction for the following entries should be considered:  
octamethylcyclotetrasiloxane (Number on list 70)  
Decamethylcyclopentasiloxane (Number on list 70)

#### **Authorisation status under REACH:**

The following substance/s contained in this product might be or is/are subject to authorization in accordance with REACH:

CAS-No.: 540-97-6	Name: Dodecamethyl cyclohexasiloxane
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Authorisation status: listed in the Candidate List of Substances of Very High Concern for Authorisation  
Authorisation number: Not available  
Sunset date: Not available  
Exempted (Categories of) Uses: Not available

CAS-No.: 556-67-2	Name: octamethylcyclotetrasiloxane
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Authorisation status: listed in the Candidate List of Substances of Very High Concern for Authorisation  
Authorisation number: Not available  
Sunset date: Not available  
Exempted (Categories of) Uses: Not available

CAS-No.: 541-02-6	Name: Decamethylcyclopentasiloxane
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Authorisation status: listed in the Candidate List of Substances of Very High Concern for Authorisation  
Authorisation number: Not available  
Sunset date: Not available  
Exempted (Categories of) Uses: Not available

#### **Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.**

Listed in Regulation: Not applicable

### 15.2 Chemical safety assessment

No Chemical Safety Assessment has been carried out for this substance/mixture.

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## SECTION 16: OTHER INFORMATION

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**Full text of H-Statements referred to under sections 2 and 3.**

H226	Flammable liquid and vapour.
H361f	Suspected of damaging fertility.
H413	May cause long lasting harmful effects to aquatic life.

**Classification and procedure used to derive the classification for mixtures according to Regulation (EC) No 1272/2008**

This product is not classified as dangerous according to EC criteria.

**Revision**

Identification Number: 99161011 / A279 / Issue Date: 28.05.2020 / Version: 4.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

**Legend**

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
GB EH40	UK. EH40 WEL - Workplace Exposure Limits
STEL	Short-term exposure limit
TWA	8-hour, time-weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)
Aquatic Chronic	Long-term (chronic) aquatic hazard
Flam. Liq.	Flammable liquids
Repr.	Reproductive toxicity

**Full text of other abbreviations**

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - European Agreement concerning the International Carriage of Dangerous Goods by Road; AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CLP - Classification Labelling Packaging Regulation; Regulation (EC) No 1272/2008; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECHA - European Chemicals Agency; EC-Number - European Community number; 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; 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; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; 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; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; SVHC - Substance of Very High Concern; TCSI - Taiwan

Chemical Substance Inventory; TRGS - Technical Rule for Hazardous Substances; TSCA - Toxic Substances Control Act (United States); UN - United Nations; vPvB - Very Persistent and Very Bioaccumulative

**Information Source and References**

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

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