SECTION 1. IDENTIFICATION

Product name : DOW CORNING(R) HIGH VACUUM GREASE
Product code : DCC000001242

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 : Lubricants and lubricant additives

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification
Reproductive toxicity : Category 2

GHS Label element
Hazard pictograms :

Signal Word : Warning
Hazard Statements : H361 Suspected of damaging fertility or the unborn child.
Precautionary Statements : Prevention:
P201 Obtain special instructions before use.
P202 Do not handle until all safety precautions have been read and understood.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
P308 + P313 IF exposed or concerned: Get medical advice/ attention.
Storage:
P405 Store locked up.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards
None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture
Chemical nature: Silicone compound

Hazardous ingredients

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS-No.</th>
<th>Concentration (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon dioxide</td>
<td>7631-86-9</td>
<td>&gt;= 5 - &lt; 10</td>
</tr>
<tr>
<td>Octamethylcyclotetrasiloxane</td>
<td>556-67-2</td>
<td>&gt;= 0.1 - &lt; 1</td>
</tr>
</tbody>
</table>

SECTION 4. FIRST AID MEASURES

If inhaled: If inhaled, remove to fresh air. Get medical attention if symptoms occur.
In case of skin contact: Wash with water and soap as a precaution. Get medical attention if symptoms occur.
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: Suspected of damaging fertility or the unborn child.

Protection of first-aiders: No special precautions are necessary for first aid responders.
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
Boron 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 : Wear self-contained breathing apparatus for firefighting if necessary.
Use personal protective equipment.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : 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 : Handle in accordance with good industrial hygiene and safety practice.
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>Silicon dioxide</td>
<td>7631-86-9</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>Octamethylcyclotetrasiloxane</td>
<td>556-67-2</td>
<td>TWA</td>
<td>6 mg/m3 (Silica)</td>
<td>NIOSH REL</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>10 ppm</td>
<td>DCC OEL</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 : No personal respiratory protective equipment normally required.

Hand protection

Remarks : Wash hands before breaks and at the end of workday.

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

Skin and body protection : Skin should be washed after contact.
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

- **Appearance**: Grease
- **Color**: white, translucent
- **Odor**: none
- **Odor Threshold**: No data available
- **pH**: Not applicable
- **Melting point/freezing point**: No data available
- **Initial boiling point and boiling range**: Not applicable
- **Flash point**: > 300 °C  
  Method: closed cup
- **Evaporation rate**: Not applicable
- **Flammability (solid, gas)**: Not classified as a flammability hazard
- **Upper explosion limit**: No data available
- **Lower explosion limit**: No data available
- **Vapor pressure**: Not applicable
- **Relative vapor density**: No data available
- **Relative density**: 1.1
- **Solubility(ies)**
  - **Water solubility**: No data available
- **Partition coefficient: n-octanol/water**: No data available
- **Autoignition temperature**: No data available
Thermal decomposition : No data available
Viscosity
Viscosity, kinematic : 2,000,000 cSt
Explosive properties : Not explosive
Oxidizing properties : The substance or mixture is not classified as oxidizing.
Molecular weight : No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity : Not classified as a reactivity hazard.
Chemical stability : Stable under normal conditions.
Possibility of hazardous reactions : Use at elevated temperatures may form highly hazardous compounds. Can react with strong oxidizing agents. Hazardous decomposition products will be formed at elevated temperatures.
Conditions to avoid : None known.
Incompatible materials : Oxidizing agents
Hazardous decomposition products
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.

Ingredients:
Silicon dioxide:
Acute oral toxicity : LD50 (Rat): > 3,300 mg/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): > 2.08 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Information taken from reference works and the literature.

Acute dermal toxicity :
LD50 (Rabbit): > 5,000 mg/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Information taken from reference works and the literature.

Octamethylcyclotetrasiloxane:
Acute oral toxicity :
LD50 (Rat): > 4,800 mg/kg  
Assessment: The substance or mixture has no acute oral toxicity  
Remarks: Based on test data

Acute inhalation toxicity :
LC50 (Rat): 2975 ppm  
Exposure time: 4 h  
Test atmosphere: vapor  
Assessment: The substance or mixture has no acute inhalation toxicity  
Remarks: Based on test data

Acute dermal toxicity :
LD50 (Rabbit): > 2.5 ml/kg  
Assessment: The substance or mixture has no acute dermal toxicity  
Remarks: Based on test data

Skin corrosion/irritation
Not classified based on available information.

Ingredients:
Silicon dioxide:  
Result: No skin irritation  
Remarks: Information taken from reference works and the literature.

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

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

Ingredients:
Silicon dioxide:  
Result: No eye irritation  
Remarks: Information taken from reference works and the literature.
Octamethylcyclotetrasiloxane:
Species: Rabbit
Result: No eye irritation
Remarks: Based on test data

Respiratory or skin sensitization
Skin sensitization: Not classified based on available information.
Respiratory sensitization: Not classified based on available information.

Ingredients:
Silicon dioxide:
Assessment: Does not cause skin sensitization.
Test Type: Skin: test type not specified
Species: Guinea pig
Remarks: No known sensitising effect.
Information taken from reference works and the literature.

Octamethylcyclotetrasiloxane:
Assessment: Does not cause skin sensitization.
Test Type: Maximization Test (GPMT)
Species: Guinea pig
Remarks: No known sensitising effect.
Based on test data

Germ cell mutagenicity
Not classified based on available information.

Ingredients:
Silicon dioxide:
Genotoxicity in vitro: Result: negative
Remarks: Information taken from reference works and the literature.
Genotoxicity in vivo: Application Route: Ingestion
Result: negative
Remarks: Information taken from reference works and the literature.
Germ cell mutagenicity- Assessment: Animal testing did not show any mutagenic effects.

Octamethylcyclotetrasiloxane:
Genotoxicity in vitro: Test Type: Bacterial reverse mutation assay (AMES)
Result: negative
Remarks: Based on test data
Genotoxicity in vitro: Test Type: Mutagenicity (in vitro mammalian cytogenetic test)
Result: negative
Remarks: Based on test data
Test Type: Chromosome aberration test in vitro
Result: negative
Remarks: Based on test data

Test Type: In vitro sister chromatid exchange assay in mammalian cells
Result: negative
Remarks: Based on test data

Test Type: DNA damage and repair, unscheduled DNA synthesis in mammalian cells (in vitro)
Result: negative
Remarks: Based on test data

Test Type: Mammalian erythrocyte micronucleus test (in vivo cytogenetic assay)
Test species: Rat
Application Route: inhalation (vapor)
Result: negative
Remarks: Based on test data

Test Type: Rodent dominant lethal test (germ cell) (in vivo)
Test species: Rat
Application Route: Ingestion
Result: negative
Remarks: Based on test data

Animal testing did not show any mutagenic effects.

Not classified based on available information.

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.

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.

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.

Suspected of damaging fertility or the unborn child.

Test Type: Two-generation reproduction toxicity study

Octamethylcyclotetrasiloxane:
Effects on fertility
Species: Rat, male and female
Application Route: inhalation (vapor)
Symptoms: Effects on fertility.
Remarks: Based on test data

Effects on fetal development
Species: Rabbit
Application Route: inhalation (vapor)
Symptoms: No effects on fetal development.
Remarks: Based on test data

Reproductive toxicity - Assessment
Species: Rat
Application Route: Ingestion
Remarks: Based on test data
Species: Rat
Application Route: inhalation (vapor)
Remarks: Based on test data
Species: Rabbit
Application Route: Skin contact
Remarks: Based on test data

Reproductive toxicity - Assessment
Species: Rabbit
Application Route: Skin contact
Remarks: Based on test data

STOT-single exposure
Not classified based on available information.

STOT-repeated exposure
Not classified based on available information.

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

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: Skin contact
Assessment: No significant health effects observed in animals at concentrations of 200 mg/kg bw or less.
Aspiration toxicity
Not classified based on available information.

Further information

Ingredients:
Octamethylcyclotetrasiloxane:
Remarks: Results from a 2 year repeated vapor 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. Based on the available information on its potential to cause harm to human health, Health Canada, in a 2008 screening assessment, has concluded that octamethylcyclotetrasiloxane is not entering the environment in a quantity or concentration or under conditions that constitute or may constitute a danger in Canada to human life or health (http://www.ec.gc.ca/ees-ees/default.asp?lang=En&n=2481508-1). 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.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Ingredients:
Octamethylcyclotetrasiloxane:
Toxicity to fish: LC50 (Oncorhynchus mykiss (rainbow trout)): > 0.022 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia sp.): > 0.015 mg/l
Exposure time: 48 h
Remarks: No toxicity at the limit of solubility.

Toxicity to algae: EC50 (Pseudokirchneriella subcapitata (green algae)): > 0.022 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility.

NOEC (Pseudokirchneriella subcapitata (green algae)): 0.022 mg/l
Exposure time: 96 h

Toxicity to fish (Chronic toxicity): NOEC (Oncorhynchus mykiss (rainbow trout)): >= 0.0044 mg/l
Exposure time: 96 h
Remarks: No toxicity at the limit of solubility.

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity): NOEC (Daphnia sp.): > 0.0079 mg/l
Exposure time: 21 d
Remarks: No toxicity at the limit of solubility.

M-Factor (Chronic aquatic): 1
toxicity)

Toxicity to bacteria : IC50: > 10,000 mg/l
Method: ISO 8192

Ecotoxicology Assessment
Chronic aquatic toxicity : May cause long lasting harmful effects to aquatic life.

Persistence and degradability

Ingredients:
Octamethylcyclotetrasiloxane:
Biodegradability : Result: Not readily biodegradable.
Biodegradation: 3.7 %
Exposure time: 28 d
Method: OECD Test Guideline 310

Stability in water : Degradation half life: 69.3 - 144 h (24.6 °C) pH: 7
Method: OECD Test Guideline 111

Bioaccumulative potential

Ingredients:
Octamethylcyclotetrasiloxane:
Partition coefficient: n-octanol/water : log Pow: 6.48 (25.1 °C)

Mobility in soil
No data available

Other adverse effects

Ingredients:
Octamethylcyclotetrasiloxane:
Results of PBT and vPvB assessment : Remarks: 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.
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
This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity
This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Chronic 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.

US State Regulations

Pennsylvania Right To Know

- Dimethyl Siloxane, Trimethylsiloxy-terminated: 63148-62-9, 70 - 90%
- Silicon dioxide: 7631-86-9, 5 - 10%
- Silicone Metalloid Complex: Proprietary Ingredient, 5 - 10%

New Jersey Right To Know

- Dimethyl Siloxane, Trimethylsiloxy-terminated: 63148-62-9, 70 - 90%
- Silicon dioxide: 7631-86-9, 5 - 10%
- Silicone Metalloid Complex: Proprietary Ingredient, 5 - 10%

California Prop 65: This product does not contain any chemicals known to the State of California to cause cancer, birth, or any other reproductive defects.

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

- KECl: All ingredients listed, exempt or notified.
- 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.
- ENCS/ISHL: All components are listed on ENCS/ISHL or exempted from inventory listing.
- PICCS: All ingredients listed or exempt.
- DSL: This product contains one or more substances which are not on the Canadian Domestic Substances List (DSL). Import of this product into Canada has volume limitations. For volume limits please consult Dow Corning Regulatory Compliance.
- NZIoC: All ingredients listed or exempt.

Inventories
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (USA)

Registration: Trade Secret

<table>
<thead>
<tr>
<th>Component</th>
<th>Registration number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone Metalloid Complex</td>
<td>NJ TSRN 14962700-8475P</td>
</tr>
</tbody>
</table>

SECTION 16. OTHER INFORMATION

Further information

**NFPA:**
- Health: 0
- Flammability: 1
- Instability: 0
- Special hazard.

**HEALTH**
- 0* = not significant, 1 = Slight, 2 = Moderate, 3 = High, 4 = Extreme

**FLAMMABILITY**
- 1

**PHYSICAL HAZARD**
- 0

Full text of other abbreviations
- DCC OEL: Dow Corning Guide
- NIOSH REL: USA, NIOSH Recommended Exposure Limits
- OSHA Z-3: USA, Occupational Exposure Limits (OSHA) - Table Z-3 Mineral Dusts
- 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
- OSHA Z-3 / TWA: 8-hour time weighted average
- Revision Date: 11/17/2014

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