SECION 1: Identification

1.1. Identification

Product name: OLIVINE
Product code: SIO6715.9
Product form: Substance
Physical state: Solid
Formula: Mg2Fe2SiO4
Synonyms: (Mg-FORSTERITE, Fe-FAYALITE)2 SiO4
Chemical family: INORGANIC SILICATE

1.2. Recommended use and restrictions on use

Recommended use: Chemical intermediate

1.3. Supplier

GELEST, INC.
11 East Steel Road
Morrisville, PA 19067
USA
T 215-547-1015 - F 215-547-2484 - (M-F): 8:00 AM - 5:30 PM EST
info@gelest.com - www.gelest.com

1.4. Emergency telephone number

Emergency number: CHEMTREC: 1-800-424-9300 (USA); +1 703-527-3887 (International)

SECION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification
Not classified

2.2. GHS Label elements, including precautionary statements

GHS US labeling
No labeling applicable

2.3. Hazards not otherwise classified (HNOC)

No additional information available

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECION 3: Composition/Information on ingredients

3.1. Substances

Substance type: Multi-constituent
Name: OLIVINE
CAS-No.: 19086-72-7

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>GHS-US classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivine</td>
<td>(CAS-No.) 19086-72-7</td>
<td>97 - 100</td>
<td>Not classified</td>
</tr>
<tr>
<td>Quartz</td>
<td>(CAS-No.) 14808-60-7</td>
<td>0 - 0.01</td>
<td>Carc. 1A, H350 STOT RE 1, H372</td>
</tr>
</tbody>
</table>

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures

Not applicable

SECION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general: Remove contaminated clothing and shoes. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). If possible show this sheet; if not available show packaging or label.

First-aid measures after inhalation: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If you feel unwell, seek medical advice.

First-aid measures after skin contact: Wash with plenty of soap and water. Get medical advice/attention.
First-aid measures after eye contact: Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

First-aid measures after ingestion: Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)
Symptoms/effects after inhalation: May cause irritation to the respiratory tract.
Symptoms/effects after skin contact: May cause skin irritation.
Symptoms/effects after eye contact: May cause eye irritation.
Symptoms/effects after ingestion: No information available.
Chronic symptoms: Long-term excessive exposure may cause talcosis, a pulmonary fibrosis, which in turn may lead to severe and permanent damage to lungs. This product contains small amounts of crystalline silica which causes silicosis. IARC found sufficient evidence in humans of carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite.

4.3. Immediate medical attention and special treatment, if necessary
No additional information available

SECTION 5: Fire-fighting measures
5.1. Suitable (and unsuitable) extinguishing media
Suitable extinguishing media: Not combustible.
Unsuitable extinguishing media: None known.

5.2. Specific hazards arising from the chemical
Fire hazard: None known.

5.3. Special protective equipment and precautions for fire-fighters
Protection during firefighting: Do not enter fire area without proper protective equipment, including respiratory protection. Avoid contact with skin and eyes. Do not breathe dust.

SECTION 6: Accidental release measures
6.1. Personal precautions, protective equipment and emergency procedures
6.1.1. For non-emergency personnel
Protective equipment: Wear protective equipment as described in Section 8.
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Do not attempt to take action without suitable protective equipment. Equip cleanup crew with proper protection. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions
Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up
For containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.
Methods for cleaning up: Sweep or shovel spills into appropriate container for disposal.

6.4. Reference to other sections
See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage
7.1. Precautions for safe handling
Precautions for safe handling: Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Provide local exhaust or general room ventilation to minimize exposure to dust.
Hygiene measures: Wash contaminated clothing before reuse. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed.
Incompatible materials: None known.
Storage area: Store in a well-ventilated place.

SECTION 8: Exposure controls/personal protection
8.1. Control parameters

<table>
<thead>
<tr>
<th>Substance</th>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>PNOC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Olivine (19086-72-7)</td>
<td></td>
<td>3 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>

Print date: 04/10/2019
EN (English US) SDS ID: SIO6715.9 2/6
OLIVINE
Safety Data Sheet

**OLIVINE (19086-72-7)**

<table>
<thead>
<tr>
<th>OSHA</th>
<th>OSHA PEL (TWA) (mg/m³)</th>
<th>10 mg/m³ PNOC</th>
</tr>
</thead>
</table>

**Quartz (14808-60-7)**

<table>
<thead>
<tr>
<th>ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.1 mg/m³ respirable dust</th>
</tr>
</thead>
<tbody>
<tr>
<td>OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>15 mg/m³ nuisance dust</td>
</tr>
</tbody>
</table>

8.2. **Appropriate engineering controls**

**Appropriate engineering controls**: Provide local exhaust or general room ventilation.

8.3. **Individual protection measures/Personal protective equipment**

**Personal protective equipment**:

Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

**Hand protection**:

Neoprene or nitrile rubber gloves

**Eye protection**:

Safety glasses. Contact lenses should not be worn

**Skin and body protection**:

Wear suitable protective clothing

**Respiratory protection**:

Where exposure through inhalation may occur from use, respiratory protection equipment is recommended. NIOSH-certified dust and mist (orange cartridge) respirator.

**SECTION 9: Physical and chemical properties**

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Powder</td>
</tr>
<tr>
<td>Color</td>
<td>Yellowish-green</td>
</tr>
<tr>
<td>Odor threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>Refractive index</td>
<td>1.63</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butyl acetate=1)</td>
<td>No data available</td>
</tr>
<tr>
<td>Melting point</td>
<td>2800 - 3200 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>No data available</td>
</tr>
<tr>
<td>Flash point</td>
<td>No data available</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not combustible</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>&lt; 0.01 mm Hg @ 20°C</td>
</tr>
<tr>
<td>Relative vapor density at 20 °C</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative density</td>
<td>3.32</td>
</tr>
<tr>
<td>Specific gravity / density</td>
<td>Median Particle Size: &lt;400 um</td>
</tr>
<tr>
<td>% Volatiles</td>
<td>100 %</td>
</tr>
<tr>
<td>Solubility</td>
<td>Insoluble in water.</td>
</tr>
<tr>
<td>Log Pow</td>
<td>No data available</td>
</tr>
<tr>
<td>Log Kow</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>No data available</td>
</tr>
<tr>
<td>Viscosity, dynamic</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosive properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Oxidizing properties</td>
<td>No data available</td>
</tr>
<tr>
<td>Explosion limits</td>
<td>No data available</td>
</tr>
</tbody>
</table>
9.2. Other information
No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity
No additional information available

10.2. Chemical stability
Stable.

10.3. Possibility of hazardous reactions
No additional information available

10.4. Conditions to avoid
None known.

10.5. Incompatible materials
None known.

10.6. Hazardous decomposition products
None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity : Not classified
Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified

Quartz (14808-60-7)

<table>
<thead>
<tr>
<th>IARC group</th>
<th>1 - Carcinogenic to humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reproductive toxicity          : Not classified</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity – single exposure : Not classified</td>
<td></td>
</tr>
<tr>
<td>Specific target organ toxicity – repeated exposure : Not classified</td>
<td></td>
</tr>
<tr>
<td>Aspiration hazard          : Not classified</td>
<td></td>
</tr>
<tr>
<td>Symptoms/effects after inhalation : May cause irritation to the respiratory tract.</td>
<td></td>
</tr>
<tr>
<td>Symptoms/effects after skin contact : May cause skin irritation.</td>
<td></td>
</tr>
<tr>
<td>Symptoms/effects after eye contact : May cause eye irritation.</td>
<td></td>
</tr>
<tr>
<td>Symptoms/effects after ingestion : No information available.</td>
<td></td>
</tr>
<tr>
<td>Chronic symptoms          : Long-term excessive exposure may cause talcosis, a pulmonary fibrosis, which in turn may lead to severe and permanent damage to lungs. This product contains small amounts of crystalline silica which causes silicosis. IARC found sufficient evidence in humans of carcinogenicity of inhaled crystalline silica in the form of quartz or cristobalite.</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 12: Ecological information

12.1. Toxicity
No additional information available

12.2. Persistence and degradability
No additional information available

12.3. Bioaccumulative potential
No additional information available

12.4. Mobility in soil
No additional information available

12.5. Other adverse effects
Effect on the ozone layer : No additional information available
### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

<table>
<thead>
<tr>
<th>Sewage disposal recommendations</th>
<th>Do not dispose of waste into sewer.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product/Packaging disposal recommendations</td>
<td>This product is a naturally occurring mineral. Unless contaminated in service, this product is neutral to the environment. Landfill. Dispose in a safe manner in accordance with local/national regulations.</td>
</tr>
<tr>
<td>Ecology - waste materials</td>
<td>Avoid release to the environment.</td>
</tr>
</tbody>
</table>

### SECTION 14: Transport information

#### 14.1. UN number

Not regulated for transport.

#### 14.2. UN proper shipping name

Not applicable

#### 14.3. Additional information

Other information : No supplementary information available.

**Transport by sea**

No additional information available

**Air transport**

No additional information available

### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

**OLIVINE (19086-72-7)**

<table>
<thead>
<tr>
<th>TSCA Exemption/Exclusion</th>
<th>Exempt-Naturally Occurring Substances in accordance with 40 CFR 710.4(b).</th>
</tr>
</thead>
</table>

Olivine (19086-72-7)

Not listed on the United States TSCA (Toxic Substances Control Act) inventory

Quartz (14808-60-7)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

#### 15.2. International regulations

**CANADA**

No additional information available

Quartz (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

**EU-Regulations**

No additional information available

Quartz (14808-60-7)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

**National regulations**

**Olivine (19086-72-7)**

Listed on INSOQ (Mexican National Inventory of Chemical Substances)

Quartz (14808-60-7)

Listed on the AICS (Australian Inventory of Chemical Substances)

Listed on NZIoC (New Zealand Inventory of Chemicals)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)

#### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

### SECTION 16: Other information

Full text of H-phrases:

<table>
<thead>
<tr>
<th>H350</th>
<th>May cause cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>H372</td>
<td>Causes damage to organs through prolonged or repeated exposure</td>
</tr>
</tbody>
</table>
Hazard Rating

Health : 1 Slight Hazard - Irritation or minor reversible injury possible

Flammability : 0 Minimal Hazard - Materials that will not burn

Physical : 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

Prepared by safety and environmental affairs.

Date of issue: 01/29/2016 Version: 1.0

SDS US (GHS HazCom 2012) - Custom

According to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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