SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form: Substance
Physical state: Solid
Substance name: SILICON DIOXIDE, crystalline
Product code: SIS6964.0
Formula: O2Si
Synonyms: SILICA; QUARTZ POWDER
Chemical family: INORGANIC SILICATE

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

Use of the substance/mixture: Chemical intermediate
For research and industrial use only

1.3. Details of the supplier of the safety data sheet

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)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US):
Not classified

2.2. Label elements

GHS-US labeling:
No labeling applicable

2.3. Other hazards

No additional information available

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Substance type: Mono-constituent
Name: SILICON DIOXIDE, crystalline
CAS No: 7631-86-9
EC no: 231-545-4

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification (GHS-US)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicon dioxide</td>
<td>(CAS No) 7631-86-9</td>
<td>&gt; 97</td>
<td>Not classified</td>
</tr>
</tbody>
</table>

3.2. Mixture

Not applicable

SECTION 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.
SILICON DIOXIDE, crystalline
Safety Data Sheet

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, both acute and delayed
Symptoms/injuries after inhalation: May cause irritation to the respiratory tract. Overexposure may cause: Coughing. Headache. Nausea. May be harmful if inhaled. Exposure to respirable silica can cause silicosis, a fibrosis (scarring) of the lungs.
Symptoms/injuries after skin contact: May cause skin irritation. May be harmful in contact with skin. There is evidence that silica can exacerbate scleroderma, an immune disorder of the skin.
Symptoms/injuries after eye contact: May cause eye irritation. May cause abrasion of cornea.
Symptoms/injuries after ingestion: May be harmful if swallowed.
Chronic symptoms: Silicosis can occur after many years of exposure to relatively low levels of airborne respirable silica.

4.3. Indication of any immediate medical attention and special treatment needed
No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media
Suitable extinguishing media: Not combustible.

5.2. Special hazards arising from the substance or mixture
Fire hazard: None known.

5.3. Advice for firefighters
Protection during firefighting: 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
Emergency procedures: Evacuate unnecessary personnel.

6.1.2. For emergency responders
Protective equipment: Equip cleanup crew with proper protection.

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

6.3. Methods and material for containment and cleaning up
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
Additional hazards when processed: While not flammable, the ability of fumed silica to generate static charge may present a hazard when used in combination with flammable liquids.
Precautions for safe handling: Provide local exhaust or general room ventilation to minimize exposure to dust. Avoid contact with skin and eyes. Do not breathe dust.
Hygiene measures: Wash hands thoroughly after handling. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities
Storage conditions: Keep container tightly closed. Store in a dry place.
Incompatible materials: Strong oxidizers.
Storage area: Store in a well-ventilated place. Store away from heat.

7.3. Specific end use(s)
No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>Silicon dioxide (7631-86-9)</th>
<th>USA ACGIH</th>
<th>ACGIH TWA (mg/m³)</th>
<th>0.1 mg/m³</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA NIOSH</td>
<td>NIOSH REL (TWA) (mg/m³)</td>
<td>6 mg/m³</td>
<td></td>
</tr>
<tr>
<td>USA IDLH</td>
<td>US IDLH (mg/m³)</td>
<td>3000 mg/m³</td>
<td></td>
</tr>
</tbody>
</table>
8.2. Exposure controls

<table>
<thead>
<tr>
<th>Appropriate engineering controls</th>
<th>Provide local exhaust or general room ventilation.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal protective equipment</td>
<td>Avoid all unnecessary exposure. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.</td>
</tr>
<tr>
<td>Hand protection</td>
<td>Neoprene or nitrile rubber gloves.</td>
</tr>
<tr>
<td>Eye protection</td>
<td>Chemical goggles. Contact lenses should not be worn.</td>
</tr>
<tr>
<td>Skin and body protection</td>
<td>Wear suitable protective clothing.</td>
</tr>
<tr>
<td>Respiratory protection</td>
<td>Wear respiratory protection. NIOSH-certified dust and mist (orange cartridge) respirator.</td>
</tr>
</tbody>
</table>

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- **Physical state**: Solid
- **Appearance**: Powder.
- **Molecular mass**: 60.09 g/mol
- **Color**: White.
- **Odor**: No data available
- **Odor threshold**: No data available
- **Refractive index**: 1.54
- **pH**: No data available
- **Relative evaporation rate (butyl acetate=1)**: No data available
- **Melting point**: 1610 °C
- **Freezing point**: No data available
- **Boiling point**: 2230 °C
- **Flash point**: No data available
- **Auto-ignition temperature**: No data available
- **Decomposition temperature**: No data available
- **Flammability (solid, gas)**: No data available
- **Vapor pressure**: < 0.01 mm Hg @ 20°C
- **Relative vapor density at 20 °C**: No data available
- **Relative density**: 2.65
- **VOC content**: 0 %
- **Solubility**: Insoluble in water.
- **Log Pow**: No data available
- **Log Kow**: No data available
- **Viscosity, kinematic**: No data available
- **Viscosity, dynamic**: No data available
- **Explosive properties**: No data available
- **Oxidizing properties**: No data available
- **Explosive limits**: No data available

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

Silicon dioxide (7631-86-9)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LD50 oral rat</td>
<td>&gt; 5000 mg/kg</td>
</tr>
<tr>
<td>LD50 dermal rabbit</td>
<td>&gt; 2000 mg/kg</td>
</tr>
<tr>
<td>LC50 inhalation rat (mg/l)</td>
<td>&gt; 2.2 mg/l (Exposure time: 1 h)</td>
</tr>
</tbody>
</table>

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

IARC has concluded that there was sufficient evidence of the carcinogenicity of crystalline silica to experimental animals, but that there was limited evidence of carcinogenicity of crystalline silica to humans.

SECTION 12: Ecological information

12.1. Toxicity

Silicon dioxide (7631-86-9)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>LC50 fish</td>
<td>5000 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])</td>
</tr>
<tr>
<td>EC50 Daphnia 1</td>
<td>7600 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia)</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Silicon dioxide (7631-86-9)

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCF fish 1</td>
<td>(no bioaccumulation expected)</td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on ozone layer: No additional information available

Effect on the global warming: No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations: Landfill. Dispose in a safe manner in accordance with local/national regulations.

Ecology - waste materials: Avoid release to the environment.

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

| Silicon dioxide (7631-86-9) | Listed on the United States TSCA (Toxic Substances Control Act) inventory |

### 15.2. International regulations

<table>
<thead>
<tr>
<th>Silicon dioxide (7631-86-9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Listed on the AICS (Australian Inventory of Chemical Substances)</td>
</tr>
<tr>
<td>Listed on the Canadian DSL (Domestic Substances List)</td>
</tr>
<tr>
<td>Listed on IECCS (Inventory of Existing Chemical Substances Produced or Imported in China)</td>
</tr>
<tr>
<td>Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)</td>
</tr>
<tr>
<td>Listed on the Japanese ENCS (Existing &amp; New Chemical Substances) inventory</td>
</tr>
<tr>
<td>Listed on the Korean ECL (Existing Chemicals List)</td>
</tr>
<tr>
<td>Listed on NZIoC (New Zealand Inventory of Chemicals)</td>
</tr>
<tr>
<td>Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)</td>
</tr>
<tr>
<td>Listed on the Canadian IDL (Ingredient Disclosure List)</td>
</tr>
</tbody>
</table>

### 15.3. US State regulations

**SILICON DIOXIDE, crystalline (7631-86-9)**

<table>
<thead>
<tr>
<th>U.S. - California - Proposition 65 - Carcinogens List</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. - California - Proposition 65 - Developmental Toxicity</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Female</td>
<td>No</td>
</tr>
<tr>
<td>U.S. - California - Proposition 65 - Reproductive Toxicity - Male</td>
<td>No</td>
</tr>
</tbody>
</table>

**Silicon dioxide (7631-86-9)**

| U.S. - California - Toxic Air Contaminant List (AB 1807, AB 2728) | No |
| U.S. - Connecticut - Hazardous Air Pollutants - HLVs (30 min) | No |
| U.S. - Connecticut - Hazardous Air Pollutants - HLVs (8 hr) | No |
| U.S. - Massachusetts - Right To Know List | No |
| U.S. - Minnesota - Hazardous Substance List | No |
| U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - 24-Hour | No |
| U.S. - New Hampshire - Regulated Toxic Air Pollutants - Ambient Air Levels (AALs) - Annual | No |
| U.S. - New Jersey - Right to Know Hazardous Substance List | No |
| U.S. - Oregon - Permissible Exposure Limits - Mineral Dusts | No |
| U.S. - Pennsylvania - RTK (Right to Know) List | No |
| U.S. - Texas - Effects Screening Levels - Long Term | No |
| U.S. - Texas - Effects Screening Levels - Short Term | No |

No significance risk level (NSRL)
**SECTION 16: Other information**

Abbreviations and acronyms:
- Abbreviations: ND: Not Determined, No Data; NA: Not Applicable; LD: Lethal Dose; LC: Lethal Concentration; ATE: Acute Toxicity Estimates; H: hour; °: °C unless otherwise stated; mm: millimeters Hg, torr; PEL: permissible exposure level; TWA: time weighted average; TLV: threshold limit value; TG: Test Guideline; NIOSH: National Institute for Occupational Safety and Health; IARC: International Agency for Research on Cancer; NTP: National Toxicology Program; HMIS: Hazardous Material Information System; CAS No.: Chemical Abstract Service Registration Number; EC No.: European Commission Registration Number; EC Index No.: European Commission Index Number; OECD: The Organisation for Economic Co-operation and Development.

HMIS III Rating
- Health: 1 Slight Hazard - Irritation or minor reversible injury possible
- Flammability: 0 Minimal Hazard
- Physical: 0 Minimal Hazard

Prepared by safety and environmental affairs.

Date of issue: 02/18/2015  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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