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

1.1. Product identifier

Product name: SILICA PRODUCTS

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

Relevant identified uses: Refractory insulation
Uses advised against: No additional information.

1.3. Details of the supplier of the safety data sheet

Supplier
Allied Mineral Products, Inc.
2700 Scioto Parkway
Columbus, OH 43221
Customer Service: (614)-876-0244
E-Mail of person responsible for SDS: sdsinfo@alliedmin.com

Allied Mineral Products Europe B.V.
Energieweg 5 4691 SE
Tholen, Netherlands
Customer Service: +31-166 601200

Allied Refractory Products India Pvt. Ltd.
SM-5 Bol, G.I.D.C.
b/h Tata Nano, Tal.: Sanand
Dist.: Ahmedabad, Gujarat 3821705, India
Customer Service: +91-2717-616800

2. Classification of the substance or mixture

Classification according to Regulation (EC) 1272/2008 [CLP]
Health: Target Organ Toxicity (Repeated exposure), Category 2

2.2. Label elements

Classification according to Regulation (EC) 1272/2008 [CLP]
Hazard pictogram(s): [Health hazard]

Signal Word: WARNING
Hazard statement(s): H373: May cause damage to organs (state all organs affected, if known)
SILICA PRODUCTS

through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard).

Precautionary statement(s)

Prevention

P260: Do not breathe dust/fume/gas/mist/vapours/spray.
P285: In case of inadequate ventilation wear respiratory protection.
P501: Dispose of contents/container to …

2.3. Other hazards

Immediate concerns

Not Applicable

Additional information

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C (1600°F) it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1470°C (2680°F), it can change to a form of crystalline silica known as cristobalite. Crystalline silica as trydimite and cristobalite are more fibrogenic than crystalline silica as quartz.

SECTION 3: Composition / information on ingredients

3.1. Substances

Not Applicable

3.2. Mixtures

<table>
<thead>
<tr>
<th>Chemical Name</th>
<th>CAS</th>
<th>EC No.</th>
<th>Wt.%</th>
<th>Classification according to Regulation (EC) 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica, Crystalline quartz (non-respirable)</td>
<td>14808-60-7</td>
<td>238-878-4</td>
<td>Up to 100</td>
<td>Not Classified</td>
</tr>
<tr>
<td>Silica, Crystalline quartz (respirable fraction)</td>
<td>14808-60-7</td>
<td>Not Applicable</td>
<td>&lt; 10</td>
<td>STOT RE</td>
</tr>
</tbody>
</table>

For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Following eyes

: Immediately flush eyes with plenty of water for at least 15 minutes. Seek medical attention if irritation persists.

Following skin

: Wash with soap and water. Seek medical attention if irritation develops or persists.

Following ingestion

: Drink plenty of water. Consult a physician.

Following inhalation

: Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Eyes

: Irritation, burning, redness, pain.

Skin

: Contact may cause skin irritation.

Ingestion

: Not a likely route of entry.
## Inhalation
May include shortness of breath, wheezing, coughing, and sputum production.

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

**Notes to physician:** Not Applicable

### SECTION 5: Fire fighting measures

#### 5.1. Extinguishing media

**Extinguishing media:** As appropriate for surrounding fire.

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

**General hazard:** This product is noncombustible and will not ignite or contribute to the intensity of a fire.

#### 5.3. Advice for firefighters

**Fire fighting procedures:** As appropriate for surrounding fire.

**Fire fighting equipment:** As in any fire, wear self-contained breathing apparatus pressure-demand and full protective gear.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

**General procedures:** Not Applicable

**Special protective equipment:** Personal Protective Equipment should be worn as indicated in Section 8.

#### 6.2. Environmental precautions

**Water spill:** Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released into water.

**Land spill:** Dusts of as-manufactured refractory product are not believed to be a significant threat to the environment if accidentally released on land. Dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an environmental threat exists in the case of a release.

**Air spill:** Exhaust ventilation is recommended to maintain airborne dust concentrations below regulatory exposure levels. Consult individual operating permits for allowable air emissions.

#### 6.3. Methods and material for containment and cleaning up

**Small spill:** Vacuum or sweep up material and place in a disposal container. Avoid dust generation.

**Large spill:** Clean up using methods which avoid dust generation. Compressed air should not be used to clean up spills. Wear appropriate personal protective equipment. Collect material in a compatible and appropriately labeled container. Dispose of material from processing, installation, maintenance, or tear-out operations in accordance with applicable regulations.

#### 6.4. Reference to other sections
SECTION 7: Handling and storage

7.1. Precautions for safe handling

General procedures: Keep dry and avoid exposure to moisture prior to use.
Handling: Use proper procedures for installation and operation. Contact manufacturer for proper procedures. Practice good housekeeping to minimize dust generation. Respirators should be worn during installation and removal of product if dust could be generated. Consult Section 8 for respirator selection information.
Storage: Store in a dry area.

7.2. Conditions for safe storage, including any incompatibilities

Storage temperature: Not Applicable

7.3. Specific end use(s)

Specific end use(s): Refractory Insulation

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Control parameters: Not Applicable

8.2. Exposure controls

Engineering controls: Local exhaust ventilation may be necessary to control any air contaminants to within their exposure limits during the use of this product.
Eye/face protection: Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection: Use rubber gloves. Wash thoroughly after handling.
Respiratory protection: If it is not possible to reduce airborne exposure levels to below the exposure limits with ventilation, use the table below to assist you in selecting respirators that will reduce personal exposures to below the exposure limits. The assigned protection factor (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m³, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m³.
### Assigned Protection Factor vs. Type of Respirator

<table>
<thead>
<tr>
<th>Assigned Protection Factor</th>
<th>Type of Respirator</th>
</tr>
</thead>
</table>
| 10                         | Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter.  
                                | Appropriate filtering facepiece respirator.  
                                | Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter.  
                                | Any negative pressure (demand) supplied-air respirator equipped with a half-mask.                                                                                                                                   |
| 25                         | Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter.  
                                | Any continuous flow supplied-air respirator equipped with a hood or helmet.                                                                                                                                              |
| 50                         | Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s).  
                                | Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter.  
                                | Any negative pressure (demand) supplied-air respirator equipped with a full facepiece.  
                                | Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full facepiece).  
                                | Any negative pressure (demand) self-contained respirator equipped with a full facepiece.                                                                                                                                |
| 1000                       | Any pressure-demand supplied-air respirator equipped with a half-mask.                                                                                                                                                  |

### Protective clothing
- Wear clothing which minimizes skin contact or exposure.

### Work hygienic practices
- Use good personal hygiene when handling this product. Wash hands after use, before smoking, or before using the toilet.

### Other precautions
- Recommend chest X-rays and yearly vital capacity tests for employees regularly exposed to silica for early detection of silicosis. Comply with all guidelines for crystalline silica exposure.

### SECTION 9: Physical and chemical properties

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

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Granular solid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Granular to fine material.</td>
</tr>
<tr>
<td>Odor</td>
<td>No Odor</td>
</tr>
<tr>
<td>pH</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Melting temperature</td>
<td>Reference product literature.</td>
</tr>
<tr>
<td>Freezing temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Boiling temperature</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flash point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Flammable limits</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Vapor density</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>2 to 3.000 g/cc</td>
</tr>
<tr>
<td>Solubility in water</td>
<td>&lt; 3%</td>
</tr>
</tbody>
</table>

9.2. Other information
Percent volatile : Not Applicable

SECTION 10: Stability and reactivity

10.1. Reactivity
10.2. Chemical stability
Chemical stability : Stable.

10.3. Possibility of hazardous reactions
Hazardous decomposition : Hazardous polymerization will not occur.

10.4. Conditions to avoid
Conditions to avoid : Not Applicable

10.5. Incompatible materials
Incompatible materials : Strong acids, bases, oxidizing agents.

10.6. Hazardous decomposition products
Hazardous decomposition products : Not Applicable

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute
Notes : Acute silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period.

STOT-single exposure : SILICOSIS - caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), and accelerated (or acute). Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple Silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function, or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated Silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the
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symptoms, if present, are shortness of breath, wheezing, cough, and sputum production.

**SECTION 12: Ecological information**

<table>
<thead>
<tr>
<th>12.1. Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Toxicity</strong></td>
</tr>
<tr>
<td>None Known</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.2. Persistence and degradability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Persistence and degradability</strong></td>
</tr>
<tr>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.3. Bioaccumulative potential</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Bioaccumulative potential</strong></td>
</tr>
<tr>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.4. Mobility in soil</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mobility in soil</strong></td>
</tr>
<tr>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.5. Results of PBT and vPvB assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Results of PBT and vPvB assessment</strong></td>
</tr>
<tr>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>12.6. Other adverse effects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General comments</strong></td>
</tr>
<tr>
<td>Dusts of as-manufactured refractory product have a low order of aquatic toxicity, are insoluble, and are not very mobile. Based upon this information, it is not believed to be a significant threat to the environment if accidentally released on land or into water. However, dust and material generated during maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, respirable crystalline silica, alkaline materials). Evaluation of dust and material from specific processes should be performed to determine if an environmental threat exists in the case of release.</td>
</tr>
</tbody>
</table>

**SECTION 13: Disposal considerations**

<table>
<thead>
<tr>
<th>13.1. Waste treatment methods</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product disposal</strong></td>
</tr>
<tr>
<td>The as-manufactured refractory product or refractory dust is not considered a hazardous waste. Dust and material generated during use, maintenance and tear-out operations may be contaminated with other hazardous substances (e.g., metals, alkaline materials) from a particular application. Additionally, the spent refractory could contain reaction products not originally present in the supplied refractory material. Contaminants or reaction products have the potential to cause the refractory waste to exhibit hazardous waste characteristics. It is the responsibility of the user to consult applicable regulations prior to disposal of any industrial product to ensure waste disposal compliance. Waste analysis and characterization may be necessary to determine proper waste disposal. <strong>Waste Management:</strong> Dusts could contain respiratory hazards. To prevent waste materials becoming airborne during waste generation, storage, transportation, and disposal, proper dust control measures are recommended.</td>
</tr>
</tbody>
</table>

**SECTION 14: Transport information**

<table>
<thead>
<tr>
<th>14.1. UN number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
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UN number : N/A

14.2. UN proper shipping name
UN proper shipping name : Not Regulated for Transport

14.3. Transport hazard class(es)
Primary hazard class/division : Not Applicable

14.4. Packing group
Packing group : N/A

14.5. Environmental hazards
Marine pollutant #1 : Not Applicable

14.6. Special precautions for user
ADR - road : Not Applicable

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Transport in bulk : Not Applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
RoHS : Not Applicable

15.2. Chemical safety assessment
Chemical safety assessment : Not Applicable

SECTION 16: Other information

Relevant H-statements (number and full text) : STOT RE, : Target Organ Toxicity (Repeated exposure),

Revision summary : This MSDS replaces the 04/18/2017 MSDS.

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