SAFETY DATA SHEET

1. Identification

Material name: EUCON MSA - BULK - USA
Material: 3001 99

Recommended use and restriction on use
Recommended use: Cement, Portland, chemicals
Restrictions on use: Not known.

Manufacturer/Importer/Supplier/Distributor Information
EUCLID CHEMICAL COMPANY
19218 REDWOOD ROAD
CLEVELAND OH 44110
US

Contact person: EH&S Department
Telephone: 216-531-9222
Emergency telephone number: 1-800-424-9300 (US); 1-613-996-6666 (Canada)

2. Hazard(s) identification

Hazard Classification

Health Hazards
Carcinogenicity Category 1A

Unknown toxicity - Health
Acute toxicity, oral 1.3 %
Acute toxicity, dermal 4.1 %
Acute toxicity, inhalation, vapor 100 %
Acute toxicity, inhalation, dust or mist 100 %

Unknown toxicity - Environment
Acute hazards to the aquatic environment 99 %
Chronic hazards to the aquatic environment 100 %

Label Elements

Hazard Symbol:

Signal Word: Danger
Hazard Statement: May cause cancer.
Precautionary
Statement:
Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required.
Response: If exposed or concerned: Get medical advice/attention.
Storage: Store locked up.
Disposal: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Other hazards which do not result in GHS classification: None.

3. Composition/information on ingredients

Mixtures

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>CAS number</th>
<th>Content in percent (%)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumed silica</td>
<td>69012-64-2</td>
<td>60 - 100%</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>1305-76-8</td>
<td>0.5 - 1.5%</td>
</tr>
<tr>
<td>Iron oxide</td>
<td>1309-37-1</td>
<td>0.5 - 1.5%</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>1309-48-4</td>
<td>0.5 - 1.5%</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>1310-58-3</td>
<td>0.5 - 1.5%</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>1344-28-1</td>
<td>0.5 - 1.5%</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/Silica Sand</td>
<td>14808-60-7</td>
<td>0.1 - 1%</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1310-73-2</td>
<td>0.1 - 1%</td>
</tr>
</tbody>
</table>

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Ingestion: Call a POISON CENTER/doctor...if you feel unwell. Rinse mouth.

Inhalation: Move to fresh air.

Skin Contact: Wash skin thoroughly with soap and water. If skin irritation occurs: Get medical advice/attention.

Eye contact: Any material that contacts the eye should be washed out immediately with water. If easy to do, remove contact lenses. If eye irritation persists: Get medical advice/attention.

Most important symptoms/effects, acute and delayed

Symptoms: May cause skin and eye irritation.

Indication of immediate medical attention and special treatment needed

Treatment: Symptoms may be delayed.
5. Fire-fighting measures

**General Fire Hazards:** No unusual fire or explosion hazards noted.

### Suitable (and unsuitable) extinguishing media

| Suitable extinguishing media: | Use fire-extinguishing media appropriate for surrounding materials. |
| Unsuitable extinguishing media: | Do not use water jet as an extinguisher, as this will spread the fire. |

### Specific hazards arising from the chemical:
During fire, gases hazardous to health may be formed.

### Special protective equipment and precautions for firefighters

| Special fire fighting procedures: | No data available. |
| Special protective equipment for fire-fighters: | Self-contained breathing apparatus and full protective clothing must be worn in case of fire. |

6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures:
No data available.

### Methods and material for containment and cleaning up:
Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

### Notification Procedures:
In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

### Environmental Precautions:
Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water sources or sewer. Environmental manager must be informed of all major spillages.

7. Handling and storage

### Precautions for safe handling:
Do not handle until all safety precautions have been read and understood. Obtain special instructions before use. Use personal protective equipment as required. Ventilate well, avoid breathing vapors. Use approved respirator if air contamination is above accepted level. Use mechanical ventilation in case of handling which causes formation of dust.

### Conditions for safe storage, including any incompatibilities:
Store locked up.
# 8. Exposure controls/personal protection

## Control Parameters

### Occupational Exposure Limits

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>type</th>
<th>Exposure Limit Values</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumed silica</td>
<td>TWA</td>
<td>20 millions of particles per cubic foot of air</td>
<td>US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.8 mg/m³</td>
<td>US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>TWA</td>
<td>2 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Iron oxide - Respirable fraction.</td>
<td>TWA</td>
<td>5 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>Iron oxide - Fume.</td>
<td>PEL</td>
<td>10 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Magnesium oxide - Inhalable fraction.</td>
<td>TWA</td>
<td>10 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>Magnesium oxide - Total particulate.</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>Ceiling</td>
<td>2 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>Aluminum oxide - Respirable fraction.</td>
<td>TWA</td>
<td>1 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>5 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Aluminum oxide - Total dust.</td>
<td>PEL</td>
<td>15 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/ Silica Sand - Respirable fraction.</td>
<td>TWA</td>
<td>0.025 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/ Silica Sand - Respirable.</td>
<td>TWA</td>
<td>2.4 millions of particles per cubic foot of air</td>
<td>US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>0.1 mg/m³</td>
<td>US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/ Silica Sand - Total dust.</td>
<td>TWA</td>
<td>0.3 mg/m³</td>
<td>US. OSHA Table Z-3 (29 CFR 1910.1000) (2000)</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>Ceiling</td>
<td>2 mg/m³</td>
<td>US. ACGIH Threshold Limit Values (2011)</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>2 mg/m³</td>
<td>US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)</td>
</tr>
</tbody>
</table>
## Chemical name | type | Exposure Limit Values | Source
---|---|---|---
Fumed silica - Total fume. | TWA | 4 mg/m³ | Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Fumed silica - Respirable fume. | TWA | 1.5 mg/m³ | Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Fumed silica - Respirable. | TWA | 2 mg/m³ | Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Fumed silica - Respirable dust and/or fume. | TWA | 2 mg/m³ | Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)
Crystalline Silica (Quartz)/ Silica Sand - Respirable fraction. | TWA | 0.025 mg/m³ | Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended) (07 2007)
Crystalline Silica (Quartz)/ Silica Sand - Respirable. | TWA | 0.10 mg/m³ | Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents) (11 2010)
Crystalline Silica (Quartz)/ Silica Sand - Respirable dust. | TWA | 0.1 mg/m³ | Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment) (12 2008)

### Appropriate Engineering Controls
Mechanical ventilation or local exhaust ventilation may be required. Observe good industrial hygiene practices. Observe occupational exposure limits and minimize the risk of inhalation of dust.

### Individual protection measures, such as personal protective equipment

**General information:** Use personal protective equipment as required.

**Eye/face protection:** Wear goggles/face shield.

**Skin Protection**

**Hand Protection:** Use suitable protective gloves if risk of skin contact.

**Other:** No data available.

**Respiratory Protection:** In case of inadequate ventilation use suitable respirator. Seek advice from local supervisor.

**Hygiene measures:** Observe good industrial hygiene practices. Wash hands before breaks and immediately after handling the product.
9. Physical and chemical properties

Appearance

Physical state: solid
Form: Powder
Color: Gray
Odor: Odorless
Odor threshold: No data available.
pH: No data available.
Melting point/freezing point: No data available.
Initial boiling point and boiling range: 1,230 °C 2,246 °F
Flash Point: No data available.
Evaporation rate: No data available.
Flammability (solid, gas): No

Upper/lower limit on flammability or explosive limits

Flammability limit - upper (%): No data available.
Flammability limit - lower (%): No data available.
Explosive limit - upper (%): No data available.
Explosive limit - lower (%): No data available.

Vapor pressure: No data available.
Vapor density: No data available.
Relative density: 2.2

Solubility(ies)

Solubility in water: Miscible with water.
Solubility (other): No data available.
Partition coefficient (n-octanol/water): No data available.
Auto-ignition temperature: No data available.
Decomposition temperature: No data available.
Viscosity: No data available.

10. Stability and reactivity

Reactivity: No data available.

Chemical Stability: Material is stable under normal conditions.

Possibility of Hazardous Reactions: No data available.

Conditions to Avoid: Avoid heat or contamination.

Incompatible Materials: No data available.

Hazardous Decomposition Products: Thermal decomposition or combustion may liberate carbon oxides and other toxic gases or vapors.
11. Toxicological information

Information on likely routes of exposure

Ingestion: May be ingested by accident. Ingestion may cause irritation and malaise.

Inhalation: In high concentrations, vapors, fumes or mists may irritate nose, throat and mucus membranes.

Skin Contact: Causes mild skin irritation.

Eye contact: Eye contact is possible and should be avoided.

Information on toxicological effects

Acute toxicity (list all possible routes of exposure)

Oral
Product: No data available.

Dermal
Product: No data available.

Inhalation
Product: No data available.

Specified substance(s):
Fumed silica LC 50 (Rat, 4 h): > 2.08 mg/l
Calcium oxide LC 50 (Rat, 4 h): 160 mg/m3
Iron oxide LC 0 (Rat): > 210 mg/m3
Aluminum oxide NOAEL (Rat, 4 h): 10 mg/m3

Repeated dose toxicity
Product: No data available.

Skin Corrosion/Irritation
Product: No data available.

Serious Eye Damage/Eye Irritation
Product: No data available.
Specified substance(s):
- Calcium oxide in vivo (Rabbit, 24 hrs): Category 1
- Iron oxide in vivo (Rabbit, 1 - 72 hrs): Not irritating
- Magnesium oxide Slightly irritating
- Potassium hydroxide in vivo (Rabbit, 24 hrs): Corrosive KOH 5%
- Aluminum oxide in vivo (Rabbit, 24 hrs): Not irritating
- Sodium hydroxide in vivo (Rabbit, 1 d): 10% Sodium Hydroxide- Category 1; 0.5% Sodium Hydroxide- Slightly irritating to eyes

Respiratory or Skin Sensitization
Product: No data available.

Carcinogenicity
Product: No data available.

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans:
- Crystalline Silica (Quartz)/ Silica Sand Overall evaluation: Carcinogenic to humans.

US. National Toxicology Program (NTP) Report on Carcinogens:
- Crystalline Silica (Quartz)/ Silica Sand Known To Be Human Carcinogen.

- No carcinogenic components identified

Germ Cell Mutagenicity
- In vitro Product: No data available.
- In vivo Product: No data available.

Reproductive toxicity
Product: No data available.

Specific Target Organ Toxicity - Single Exposure
Product: No data available.

Specific Target Organ Toxicity - Repeated Exposure
Product: No data available.
Aspiration Hazard

Product: No data available.

Other effects: No data available.

12. Ecological information

Ecotoxicity:

Acute hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):
- Potassium hydroxide: LC 50 (Western mosquitofish (Gambusia affinis), 96 h): 80 mg/l Mortality
- Sodium hydroxide: LC 50 (Western mosquitofish (Gambusia affinis), 96 h): 125 mg/l Mortality

Aquatic Invertebrates

Product: No data available.

Specified substance(s):
- Sodium hydroxide: EC 50 (Water flea (Ceriodaphnia dubia), 48 h): 34.59 - 47.13 mg/l Intoxication

Chronic hazards to the aquatic environment:

Fish

Product: No data available.

Specified substance(s):
- Calcium oxide: NOAEL (Oncorhynchus mykiss, 60 d): 307 mg/l interpreted
- Iron oxide: LOAEL (Pimephales promelas, 33 d): 1.6 mg/l experimental result
- Aluminum oxide: NOAEL (Pimephales promelas, 28 d): 4.7 mg/l experimental result

Aquatic Invertebrates

Product: No data available.

Toxicity to Aquatic Plants

Product: No data available.

Persistence and Degradability

Biodegradation

Product: No data available.
BOD/COD Ratio
Product: No data available.

Bioaccumulative Potential
Bioconcentration Factor (BCF)
Product: No data available.

Partition Coefficient n-octanol / water (log Kow)
Product: No data available.

Mobility in Soil: No data available.
Other Adverse Effects: No data available.

13. Disposal considerations

Disposal instructions: Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Contaminated Packaging: No data available.

14. Transport information

TDG:
Not Regulated

CFR / DOT:
Not Regulated

IMDG:
Not Regulated

15. Regulatory information

US Federal Regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
None present or none present in regulated quantities.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
None present or none present in regulated quantities.
CERCLA Hazardous Substance List (40 CFR 302.4):

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Reportable quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>1000 lbs.</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>1000 lbs.</td>
</tr>
</tbody>
</table>

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Delayed (Chronic) Health Hazard

SARA 302 Extremely Hazardous Substance
None present or none present in regulated quantities.

SARA 304 Emergency Release Notification

<table>
<thead>
<tr>
<th>Chemical Identity</th>
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</thead>
<tbody>
<tr>
<td>Potassium hydroxide</td>
<td>1000 lbs.</td>
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<tr>
<td>Sodium hydroxide</td>
<td>1000 lbs.</td>
</tr>
</tbody>
</table>

SARA 311/312 Hazardous Chemical

<table>
<thead>
<tr>
<th>Chemical Identity</th>
<th>Threshold Planning Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumed silica</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Iron oxide</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Potassium hydroxide</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/Silica Sand</td>
<td>500 lbs</td>
</tr>
<tr>
<td>Sodium hydroxide</td>
<td>500 lbs</td>
</tr>
</tbody>
</table>

SARA 313 (TRI Reporting)
None present or none present in regulated quantities.

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3)
None present or none present in regulated quantities.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):
None present or none present in regulated quantities.

US State Regulations

US. California Proposition 65
This product contains chemical(s) known to the State of California to cause cancer and/or to cause birth defects or other reproductive harm.

US. New Jersey Worker and Community Right-to-Know Act

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumed silica</td>
</tr>
</tbody>
</table>

US. Massachusetts RTK - Substance List

<table>
<thead>
<tr>
<th>Chemical Identity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fumed silica</td>
</tr>
<tr>
<td>Crystalline Silica (Quartz)/Silica Sand</td>
</tr>
</tbody>
</table>
### US. Pennsylvania RTK - Hazardous Substances

**Chemical Identity**
- Fumed silica

### US. Rhode Island RTK
No ingredient regulated by RI Right-to-Know Law present.

### Other Regulations:

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulatory VOC (less water and exempt solvent)</td>
<td>0 g/l</td>
</tr>
<tr>
<td>VOC Method 310</td>
<td>0.00 %</td>
</tr>
</tbody>
</table>

### Inventory Status:

- **Australia AICS:** All components in this product are listed on or exempt from the Inventory.
- **Canada DSL Inventory List:** All components in this product are listed on or exempt from the Inventory.
- **EINECS, ELINCS or NLP:** All components in this product are listed on or exempt from the Inventory.
- **Japan (ENCS) List:** All components in this product are listed on or exempt from the Inventory.
- **China Inv. Existing Chemical Substances:** All components in this product are listed on or exempt from the Inventory.
- **Korea Existing Chemicals Inv. (KECI):** All components in this product are listed on or exempt from the Inventory.
- **Canada NDSL Inventory:** One or more components in this product are not listed on or exempt from the Inventory.
- **Philippines PICCS:** All components in this product are listed on or exempt from the Inventory.
- **US TSCA Inventory:** All components in this product are listed on or exempt from the Inventory.
- **New Zealand Inventory of Chemicals:** All components in this product are listed on or exempt from the Inventory.
- **Japan ISHL Listing:** All components in this product are listed on or exempt from the Inventory.
- **Japan Pharmacopoeia Listing:** One or more components in this product are not listed on or exempt from the Inventory.
16. Other information, including date of preparation or last revision

<table>
<thead>
<tr>
<th>Revision Date:</th>
<th>08/13/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Version #:</td>
<td>1.0</td>
</tr>
<tr>
<td>Further Information:</td>
<td>No data available.</td>
</tr>
<tr>
<td>Disclaimer:</td>
<td>For Industrial Use Only. Keep out of Reach of Children. The hazard information herein is offered solely for the consideration of the user, subject to their own investigation of compliance with applicable regulations, including the safe use of the product under every foreseeable condition.</td>
</tr>
</tbody>
</table>