Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **Reno Gun 60 SIC LC**

Product Code • 128500

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

Recommended use • Refractory applications

Details of the supplier of the safety data sheet

Manufacturer • Reno Refractories, Inc.

P O Box 201
Morris, AL 35116
United States
www.renorefractories.com
sales@renorefractories.com

Telephone (General) • 205-647-0240

Emergency telephone number

Manufacturer • 1-800-262-8200 - CHEMTREC

Section 2: Hazard Identification

United States (US)

According to: OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Serious Eye Damage 1
Carcinogenicity 1A
Specific Target Organ Toxicity Repeated Exposure 1

Label elements

OSHA HCS 2012

DANGER

Hazard statements • Causes serious eye damage
May cause cancer.
Causes damage to organs through prolonged or repeated exposure.

Precautionary statements

Prevention • Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.
Do not breathe dust.
Wash thoroughly after handling.
Do not eat, drink or smoke when using this product.
Wear protective gloves, clothing , and eye/face protection , .

Response • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a POISON CENTER or doctor/physician.
IF exposed or concerned: Get medical advice/attention.

Storage/Disposal • Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Other hazards

OSHA HCS 2012 • Under United States Regulations (29 CFR 1910.1200 - Hazard Communication Standard), this product is considered hazardous.

Canada

According to: WHMIS

Classification of the substance or mixture

WHMIS • Other Toxic Effects - D2A
Other Toxic Effects - D2B
Corrosive - E

Label elements

WHMIS •

WHMIS • Other Toxic Effects - D2A
Other Toxic Effects - D2B
Corrosive - E

Other hazards

WHMIS • In Canada, the product mentioned above is considered hazardous under the Workplace Hazardous Materials Information System (WHMIS).

Section 3 - Composition/Information on Ingredients

Substances

• Material does not meet the criteria of a substance.

Mixtures

Composition					
Chemical Name	**Identifiers**	**%**	**LD50/LC50**	**Classifications According to Regulation/Directive**	**Comments**
Silicon carbide	**CAS:**409-21-2	51.4% TO 62%	NDA	**OSHA HCS 2012:** STOT RE 2 (Lungs)	NDA
Aluminum oxide	**CAS:**1344-28-1	17.65% TO 29%	Inhalation-Rat LC50 • 0.2 mg/L 5 Hour(s) 28 Week(s)	**OSHA HCS 2012:** Not Classified	NDA
Cement, alumina, chemicals	**CAS:**65997-16-2	1.2% TO 6%	NDA	**OSHA HCS 2012:** Not Classified	NDA

Aluminum calcium oxide	**CAS:**12042-68-1	1.5% TO 6%	NDA	**OSHA HCS 2012:** Eye Dam. 1; Skin Irrit. 2; STOT SE 3: Resp. Irrit.;	NDA
Kaolin	**CAS:**1332-58-7	1.4% TO 4.5%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Amorphous silica fume	**CAS:**69012-64-2	0.9% TO 4%	NDA	**OSHA HCS 2012:** STOT RE 1 (Lungs)	NDA
Silicon	**CAS:**7440-21-3	1% TO 3%	Ingestion/Oral-Rat LD50 • 3160 mg/kg	**OSHA HCS 2012:** Eye Irrit. 2	NDA
Quartz	**CAS:**14808-60-7	< 1.82%	NDA	**OSHA HCS 2012:** Carc. 1A; STOT RE 1 (Lungs)	NDA
Iron oxide	**CAS:**1309-37-1	0% TO 1.24%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Silica, amorphous	**CAS:**7631-86-9	< 1.1%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Titanium dioxide	**CAS:**13463-67-7	< 1%	NDA	**OSHA HCS 2012:** Carc. 2	NDA
Amorphous/fused silica	**CAS:**60676-86-0	0% TO 0.36%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Sodium aluminate	**CAS:**1302-42-7	< 0.08%	NDA	**OSHA HCS 2012:** Exposure limits	NDA
Sodium hydroxide	**CAS:**1310-73-2	0% TO 0.07%	NDA	**OSHA HCS 2012:** Exposure limits	NDA
Zirconium oxide	**CAS:**1314-23-4	< 0.05%	NDA	**OSHA HCS 2012:** **WHMIS:**	NDA
Magnesium oxide	**CAS:**1309-48-4	0% TO 0.036%	NDA	**OSHA HCS 2012:** Exposure limits	NDA
Calcium oxide	**CAS:**1305-78-8	0% TO 0.027%	NDA	**OSHA HCS 2012:** Exposure limits	NDA
Potassium oxide	**CAS:**12136-45-7	< 0.01%	NDA	**OSHA HCS 2012:** **WHMIS:**	NDA

Section 4: First-Aid Measures

Description of first aid measures

Inhalation
- Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Get medical attention immediately.

Skin
- In case of contact with substance, immediately flush skin with running water for at least 20 minutes. If skin irritation occurs: Get medical advice/attention.

Eye
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion
- Rinse mouth. Do not give anything by mouth to an unconscious person. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed

- Refer to Section 11 - Toxicological Information.

Indication of any immediate medical attention and special treatment needed

Notes to Physician
- All treatments should be based on observed signs and symptoms of distress in thepatient. Consideration should be given to the possibility that overexposure to materialsother than this product may have occurred.

Section 5: Fire-Fighting Measures

Extinguishing media

Suitable Extinguishing Media
- Material is non-combustible. In case of fire use media as appropriate for surrounding fire.

Unsuitable Extinguishing Media
- None known.

Special hazards arising from the substance or mixture

Unusual Fire and Explosion Hazards
- None known.

Hazardous Combustion Products
- None known.

Advice for firefighters

- Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection. Wear chemical protective clothing that is specifically recommended by the manufacturer. It may provide little or no thermal protection.

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Isolate hazard area and deny entry to unauthorized and/or unprotected personnel. Do not touch or walk through spilled material. Ensure adequate ventilation to remove vapors, fumes, dust etc.

Emergency Procedures
- Ventilate closed spaces before entering. Isolate hazard area and deny entry to unauthorized and/or unprotected personnel.

Environmental precautions

- No specific actions or treatments recommended related to exposure to this material.

Methods and material for containment and cleaning up

Containment/Clean-up Measures
- Avoid generating dust.
  FOR SMALL SPILLS: Clean with a vacuum with a filtration system sufficient to remove and prevent recirculation of crystalline silica (a vacuum equipped with a high-efficiency particulate air (HEPA) filter is recommended).
  FOR LARGE SPILLS: Use a fine spray or mist to control dust creation and carefully scoop or shovel into clean dry container for later reuse or disposal.
  If, an appropriate vacuum is unavailabe, only wet-clean-up methods should be used (i.e. misting). Moisture should be added as necessary to reduce exposure to airborne respirable silica dust.

Section 7 - Handling and Storage

Precautions for safe handling

Handling
- Do not breathe dust. Avoid contact with skin, eyes, and clothing. Minimize dust generation and accumulation. Use good safety and industrial hygiene practices. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. Wear long sleeves and/or protective coveralls. Contaminated clothing must be vacuumed before removal. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Wash thoroughly after handling. Do not use in areas without adequate ventilation.

Conditions for safe storage, including any incompatibilities

Storage
- Store in a covered location. Keep container closed. Keep from freezing. Storage and work area should be periodically cleaned to minimize dust accumulation.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**Mexico**	**NIOSH**
Sodium hydroxide (1310-73-2)	Ceilings	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling	2 mg/m3 Ceiling
Iron oxide (1309-37-1)	STELs	Not established	Not established	Not established	10 mg/m3 STEL [LMPE-CT] (as Fe)	Not established
	TWAs	5 mg/m3 TWA (respirable fraction)	5 mg/m3 TWA (respirable)	5 mg/m3 TWAEV (dust and fume, as Fe); 10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, regulated under Rouge, total dust)	5 mg/m3 TWA LMPE-PPT	5 mg/m3 TWA (dust and fume, as Fe)
Calcium oxide (1305-78-8)	TWAs	2 mg/m3 TWA	2 mg/m3 TWA	2 mg/m3 TWAEV	2 mg/m3 TWA LMPE-PPT	2 mg/m3 TWA
Magnesium oxide (1309-48-4)	TWAs	10 mg/m3 TWA (inhalable fraction)	10 mg/m3 TWA (inhalable)	10 mg/m3 TWAEV (fume, as Mg)	10 mg/m3 TWA LMPE -PPT (fume, as Mg)	Not established
Amorphous/fused silica (60676-86-0)	TWAs	Not established	0.1 mg/m3 TWA (respirable)	0.1 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)	0.1 mg/m3 TWA LMPE-PPT; 10 mg/m3 TWA LMPE-PPT (inhalable particulate); 3 mg/m3 TWA LMPE-PPT (respirable particulate)	Not established
Amorphous silica fume (69012-64-2)	TWAs	Not established	2 mg/m3 TWA (respirable, listed under Silica fume)	2 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)	2 mg/m3 TWA LMPE-PPT; 10 mg/m3 TWA LMPE-PPT (inhalable particulate); 3 mg/m3 TWA LMPE-PPT (respirable particulate)	Not established
Titanium dioxide (13463-67-7)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT] (as Ti)	Not established
	TWAs	10 mg/m3 TWA	10 mg/m3 TWA	10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m3 TWA LMPE -PPT (as Ti)	Not established
Silicon (7440-21-3)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT]	Not established
	TWAs	Not established	Not established	10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m3 TWA LMPE -PPT (inhalable fraction)	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)
Silica, amorphous (7631-86-9)	TWAs	Not established	Not established	Not established	Not established	6 mg/m3 TWA
	STELs	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT]	Not established

Kaolin (1332-58-7)	TWAs	2 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)	2 mg/m3 TWA (containing no Asbestos and <1% Crystalline silica, respirable)	5 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)	10 mg/m3 TWA LMPE -PPT	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)
Quartz (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable fraction)	0.10 mg/m3 TWA (designated substances regulation, respirable, listed under Silica, crystalline)	0.1 mg/m3 TWAEV (respirable dust)	0.1 mg/m3 TWA LMPE-PPT (respirable fraction)	0.05 mg/m3 TWA (respirable dust)
Aluminum oxide (1344-28-1)	TWAs	Not established	Not established	10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust, as Al)	10 mg/m3 TWA LMPE -PPT	Not established
Silicon carbide (409-21-2)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT]	Not established
	TWAs	10 mg/m3 TWA (nonfibrous, inhalable fraction, particulate matter containing no asbestos and <1% crystalline silica); 3 mg/m3 TWA (nonfibrous, respirable fraction, particulate matter containing no asbestos and <1% crystalline silica); 0.1 fiber/cm3 TWA (as determined by the membrane filter method at 400-450X magnification (4-mm objective), using phase-contrast illumination., respirable fibers, including whiskers, length >5 µm, aspect ratio >=3:1)	10 mg/m3 TWA (non-fibrous, containing no Asbestos and <1% Crystalline silica, inhalable); 3 mg/m3 TWA (non-fibrous, containing no Asbestos and <1% Crystalline silica, respirable); 0.1 fibre/cm3 TWA (fibrous, including whiskers, fibres >5 µm in length and an aspect ratio >=3:1 as determined by the membrane filter method at 400-450 times magnification (4 -mm objective), using phase-contrast illumination, respirable)	10 mg/m3 TWAEV (non fibrous, containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m3 TWA LMPE -PPT	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)

Exposure Limits/Guidelines (Con't.)

	Result	OSHA
Sodium hydroxide (1310-73-2)	TWAs	2 mg/m3 TWA
Iron oxide (1309-37-1)	TWAs	10 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust, listed under Rouge); 5 mg/m3 TWA (respirable fraction, listed under Rouge)
Calcium oxide (1305-78-8)	TWAs	5 mg/m3 TWA
Magnesium oxide (1309-48-4)	TWAs	15 mg/m3 TWA (fume, total particulate)
Titanium dioxide (13463-67-7)	TWAs	15 mg/m3 TWA (total dust)

Silicon (7440-21-3)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Kaolin (1332-58-7)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Aluminum oxide (1344-28-1)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Silicon carbide (409-21-2)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Exposure Control Notations

Canada Ontario

•Quartz (14808-60-7): **Designated Substances:** (0.10 mg/m3 TWA (respirable fraction, listed under Silica, crystalline))

Canada Quebec

•Quartz (14808-60-7): **Carcinogens:** (C2 carcinogen - effect suspected in humans)

ACGIH

•Iron oxide (1309-37-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

•Magnesium oxide (1309-48-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

•Kaolin (1332-58-7): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

•Titanium dioxide (13463-67-7): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

•Quartz (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)

•Silicon carbide (409-21-2): **Carcinogens:** (A2 - Suspected Human Carcinogen (fibrous, including whiskers))

Exposure Limits Supplemental

OSHA

•Quartz (14808-60-7): **Mineral Dusts:** ((30)/(%SiO2 + 2) mg/m3 TWA, total dust; (250)/(%SiO2 + 5) mppcf TWA, respirable fraction; (10)/(%SiO2 + 2) mg/m3 TWA, respirable fraction)

•Amorphous/fused silica (60676-86-0): **Mineral Dusts:** ((80)/(% SiO2) mg/m3 TWA; 20 mppcf TWA)

•Silica, amorphous (7631-86-9): **Mineral Dusts:** (20 mppcf TWA; (80)/(% SiO2) mg/m3 TWA)

ACGIH

•Calcium oxide (1305-78-8): **TLV Basis - Critical Effects:** (upper respiratory tract irritation)

•Iron oxide (1309-37-1): **TLV Basis - Critical Effects:** (pneumoconiosis)

•Magnesium oxide (1309-48-4): **TLV Basis - Critical Effects:** (metal fume fever; upper respiratory tract irritation)

•Sodium hydroxide (1310-73-2): **TLV Basis - Critical Effects:** (eye, skin and upper respiratory tract irritation)

•Kaolin (1332-58-7): **TLV Basis - Critical Effects:** (pneumoconiosis)

•Titanium dioxide (13463-67-7): **TLV Basis - Critical Effects:** (lower respiratory tract irritation)

•Quartz (14808-60-7): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)

•Silicon carbide (409-21-2): **TLV Basis - Critical Effects:** (upper respiratory tract irritation (nonfibrous); cancer (fibrous, including whiskers); mesothelioma (fibrous, including whiskers))

Exposure controls

Engineering Measures/Controls

- Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Adequate ventilation systems as needed to control concentrations of airborne contaminants below applicable threshold limit values. Ensure that dust handling systems (such as exhaust ducts, dust collectors, vessels and processing equipment) are designed in a manner to prevent the escape of dust into the work area (i.e., there is not leakage from the equipment). Collection systems must be designed and maintained to prevent the accumulation and recirculation of respirable silica into the workplace.

Personal Protective Equipment

Respiratory

- For limited exposure use an N95 dust mask. For prolonged exposure use an air-purifying respirator with high efficiency particulate air (HEPA) filters. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are

exceeded or symptoms are experienced.

Eye/Face	• Wear protective eyewear (goggles, face shield, or safety glasses).
Hands	• Wear appropriate gloves.
Skin/Body	• Wear long sleeves and/or protective coveralls.
General Industrial Hygiene Considerations	• Avoid breathing dust. Avoid contact with skin, eyes or clothing. Do not remove dusts from clothing by blowing or shaking. Do not eat, drink or smoke during work. Wash hands before eating, drinking, or smoking. Wash thoroughly after handling. Handle in accordance with good industrial hygiene and safety practice.
Environmental Exposure Controls	• Follow best practice for site management and disposal of waste. Dispose of in an approved landfill.

Key to abbreviations

ACGIH = American Conference of Governmental Industrial Hygiene
NIOSH = National Institute of Occupational Safety and Health
OSHA = Occupational Safety and Health Administration
STEL = Short Term Exposure Limits are based on 15-minute exposures
TWAEV = Time-Weighted Average Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures

Section 9 - Physical and Chemical Properties

Information on Physical and Chemical Properties

Material Description			
Physical Form	Solid	Appearance/Description	Gray granular dry powder with an earthy odor.
Color	Gray	Odor	Earthy
Particulate Size	600 µ	Odor Threshold	No data available
General Properties			
Boiling Point	No data available	Melting Point/Freezing Point	No data available
Decomposition Temperature	No data available	pH	No data available
Specific Gravity/Relative Density	2.2 to 2.9 Water=1	Water Solubility	Negligible < 0.1 %
Viscosity	No data available		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available	VOC (Wt.)	0 %
VOC (Vol.)	0 %		
Flammability			
Flash Point	No data available	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	No data available		
Environmental			
Octanol/Water Partition coefficient	No data available		

Section 10: Stability and Reactivity

Reactivity

- No dangerous reaction known under conditions of normal use.

Chemical stability

- Stable under normal temperatures and pressures.

Possibility of hazardous reactions

- Hazardous polymerization not indicated.

Conditions to avoid

- None known.

Incompatible materials

- None known.

Hazardous decomposition products

- None known.

Section 11 - Toxicological Information

Information on toxicological effects

Components		
Kaolin (1.4% TO 4.5%)	1332-58-7	**Multi-dose Toxicity:** Inhalation-Rat TCLo • 30 mg/m³ 96 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Fibrosis (interstitial)**; *Lungs, Thorax, or Respiration*:**Other changes**; *Lungs, Thorax, or Respiration*:**Tumors**; **Reproductive:** Ingestion/Oral-Rat TDLo • 370 g/kg (37D pre/1-22D preg); *Reproductive Effects:Maternal Effects*:**Other effects**; *Reproductive Effects:Effects on Newborn*:**Other neonatal measures or effects.**
Titanium dioxide (< 1%)	13463-67-7	**Irritation:** Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation; **Multi-dose Toxicity:** Inhalation-Rat TCLo • 250 mg/m³ 6 Hour(s) 4 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Chronic pulmonary edema**; *Lungs, Thorax, or Respiration*:**Other changes**
Silicon (1% TO 3%)	7440-21-3	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 3160 mg/kg; **Irritation:** Eye-Rabbit • 3 mg • Mild irritation
Silica, amorphous (< 1.1%)	7631-86-9	**Irritation:** Eye-Rabbit • 25 mg 24 Hour(s) • Mild irritation

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012** • Data lacking
Skin corrosion/Irritation	**OSHA HCS 2012** • Data lacking
Serious eye damage/Irritation	**OSHA HCS 2012** • Serious Eye Damage 1
Skin sensitization	**OSHA HCS 2012** • Data lacking
Respiratory sensitization	**OSHA HCS 2012** • Data lacking
Aspiration Hazard	**OSHA HCS 2012** • Data lacking
Carcinogenicity	**OSHA HCS 2012** • Carcinogenicity 1A
Germ Cell Mutagenicity	**OSHA HCS 2012** • Data lacking
Toxicity for Reproduction	**OSHA HCS 2012** • Data lacking
STOT-SE	**OSHA HCS 2012** • Data lacking
STOT-RE	**OSHA HCS 2012** • Specific Target Organ Toxicity Repeated Exposure 1

Target Organs
- |[206]|

Route(s) of entry/exposure
- Inhalation, Skin, Eye, Ingestion

Medical Conditions Aggravated by Exposure
- Any pre-existing conditions of the lungs. Disorders of the lungs.

Potential Health Effects

Inhalation

Acute (Immediate)
- Exposure to dust may cause irritation.

Chronic (Delayed)
- Chronic overexposure to dust containing respirable sized crystalline silica can cause delayed lung injury (silicosis). Inhalation of dust containing crystalline silica pulmonary diseases such as asthma and lung disorder associated with smoking.

Skin

Acute (Immediate)
- Exposure to dust may cause irritation.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- Causes serious eye damage. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.

Chronic (Delayed)
- No data available.

Ingestion

Acute (Immediate)
- Excessive concentrations of nuisance dust in the workplace may cause mechanical irritation to mucous membranes.

Chronic (Delayed)
- No data available.

Carcinogenic Effects
- May cause cancer. IARC studies have shown sufficient evidence from animal studies to categorize crystalline silica as a group 1 carcinogen.

Carcinogenic Effects			
	CAS	IARC	NTP
Titanium dioxide	13463-67-7	Group 2B-Possible Carcinogen	Not Listed
Quartz	14808-60-7	Group 1-Carcinogenic	Known Human Carcinogen

Key to abbreviations
LD = Lethal Dose
TC = Toxic Concentration
TD = Toxic Dose

Section 12 - Ecological Information

Toxicity
- Material data lacking.

Persistence and degradability
- Material data lacking.

Bioaccumulative potential
- Material data lacking.

Mobility in Soil
- Material data lacking.

Other adverse effects
- No studies have been found.

Section 13 - Disposal Considerations

Waste treatment methods

Product waste
- Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

Packaging waste
- Dispose of content and/or container in accordance with local, regional, national, and/or

international regulations.

Section 14 - Transport Information

	UN number	UN proper shipping name	Transport hazard class (es)	Packing group	Environmental hazards
DOT	NDA	Not Regulated	NDA	NDA	NDA
TDG	NDA	Not Regulated	NDA	NDA	NDA
IATA/ICAO	NDA	Not Regulated	NDA	NDA	NDA

Special precautions for user • None specified.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code • No data available

Section 15 - Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture

SARA Hazard Classifications • Acute, Chronic

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Amorphous/fused silica	60676-86-0	Yes	Yes	No
Calcium oxide	1305-78-8	Yes	Yes	Yes
Cement, alumina, chemicals	65997-16-2	No	No	No
Iron oxide	1309-37-1	Yes	Yes	Yes
Kaolin	1332-58-7	Yes	Yes	Yes
Potassium oxide	12136-45-7	No	Yes	No
Quartz	14808-60-7	Yes	Yes	Yes
Amorphous silica fume	69012-64-2	No	No	No
Silica, amorphous	7631-86-9	Yes	Yes	Yes
Silicon	7440-21-3	Yes	Yes	Yes
Silicon carbide	409-21-2	Yes	Yes	Yes
Sodium aluminate	1302-42-7	No	No	No
Sodium hydroxide	1310-73-2	Yes	Yes	Yes
Titanium dioxide	13463-67-7	Yes	Yes	Yes
Zirconium oxide	1314-23-4	Yes	No	No

Inventory			
Component	**CAS**	**Canada DSL**	**TSCA**
Aluminum oxide	1344-28-1	Yes	Yes
Amorphous/fused silica	60676-86-0	Yes	Yes

Calcium oxide	1305-78-8	Yes	Yes
Cement, alumina, chemicals	65997-16-2	Yes	Yes
Iron oxide	1309-37-1	Yes	Yes
Kaolin	1332-58-7	Yes	Yes
Potassium oxide	12136-45-7	Yes	Yes
Quartz	14808-60-7	Yes	Yes
Amorphous silica fume	69012-64-2	Yes	Yes
Silica, amorphous	7631-86-9	Yes	Yes
Silicon	7440-21-3	Yes	Yes
Silicon carbide	409-21-2	Yes	Yes
Sodium aluminate	1302-42-7	Yes	Yes
Sodium hydroxide	1310-73-2	Yes	Yes
Titanium dioxide	13463-67-7	Yes	Yes
Zirconium oxide	1314-23-4	Yes	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	E
• Sodium aluminate	1302-42-7	E
• Kaolin	1332-58-7	D2A
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	E
• Iron oxide	1309-37-1	Uncontrolled product according to WHMIS classification criteria
• Sodium hydroxide	1310-73-2	E (including 0.04% in aqueous solution, 0.04N, 0.08%, 0.4% in aqueous solution, 2%, 2.5%, 4% in aqueous solution, 5%, 10%, 16%, 20%, 40%, 50% in aqueous solution, 8.7N)
• Titanium dioxide	13463-67-7	D2A (In certain cases, this classification does not apply. For more information, consult the section Substance Specific Issues - Titanium dioxide, mixture containing on Health Canada's WHMIS Division website.)
• Aluminum oxide	1344-28-1	Uncontrolled product according to WHMIS classification criteria
• Silicon	7440-21-3	B4
• Silicon carbide	409-21-2	Uncontrolled product according to WHMIS classification criteria
• Silica, amorphous	7631-86-9	Uncontrolled product according to WHMIS classification criteria

• Amorphous/fused silica	60676-86-0	Uncontrolled product according to WHMIS classification criteria
• Zirconium oxide	1314-23-4	Uncontrolled product according to WHMIS classification criteria
• Quartz	14808-60-7	D2A (In certain cases, this classification does not apply. For more information, consult the section Substance Specific Issues - Silica, crystalline, encapsulated on Health Canada's WHMIS Division website.)

Canada - WHMIS - Ingredient Disclosure List

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Sodium aluminate	1302-42-7	Not Listed
• Kaolin	1332-58-7	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	1 %
• Iron oxide	1309-37-1	1 %
• Sodium hydroxide	1310-73-2	1 %
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	1 %
• Silicon	7440-21-3	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Silica, amorphous	7631-86-9	1 %
• Amorphous/fused silica	60676-86-0	1 %
• Zirconium oxide	1314-23-4	Not Listed
• Quartz	14808-60-7	1 %

United States

Environment

U.S. - CERCLA/SARA - Hazardous Substances and their Reportable Quantities

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Sodium aluminate	1302-42-7	Not Listed
• Kaolin	1332-58-7	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Sodium hydroxide	1310-73-2	1000 lb final RQ; 454 kg final RQ
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Silicon	7440-21-3	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - CERCLA/SARA - Section 313 - Emission Reporting

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Sodium aluminate	1302-42-7	Not Listed
• Kaolin	1332-58-7	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	1.0 % de minimis concentration (fibrous forms)
• Silicon	7440-21-3	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Quartz	14808-60-7	Not Listed

United States - California

Environment

U.S. - California - Proposition 65 - Carcinogens List

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Sodium aluminate	1302-42-7	Not Listed
• Kaolin	1332-58-7	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	carcinogen, 9/2/2011 (airborne, unbound particles of respirable size)
• Aluminum oxide	1344-28-1	Not Listed
• Silicon	7440-21-3	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Quartz	14808-60-7	carcinogen, 10/1/1988 (airborne particles of respirable size)

United States - Pennsylvania

Labor

U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

• Cement, alumina, chemicals	65997-16-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Sodium aluminate	1302-42-7	Not Listed
• Kaolin	1332-58-7	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Sodium hydroxide	1310-73-2	

• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	
• Silicon	7440-21-3	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Quartz	14808-60-7	Not Listed

Other Information

- WARNING: This product contains a chemical known to the State of California to cause cancer.

Section 16 - Other Information

Revision Date
- 27/April/2018

Last Revision Date
- 27/April/2018

Preparation Date
- 08/January/2016

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Key to abbreviations

NDA = No data available