Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **Reno NC 1010**

Product Code • 188550

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 • Skin Sensitization 1
Germ Cell Mutagenicity 1A
Carcinogenicity 1A
Reproductive Toxicity 1A
Specific Target Organ Toxicity Repeated Exposure 1

Label elements

OSHA HCS 2012

DANGER

Hazard statements • May cause an allergic skin reaction
May cause genetic defects.
May cause cancer.
May damage fertility or the unborn child.

Causes damage to organs - lungs through prolonged or repeated exposure via inhalation

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.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.

Response
- If on skin: Wash with plenty of water.
Specific treatment, see supplemental first aid information.
Wash contaminated clothing before reuse.
If skin irritation or rash occurs: Get medical advice/attention.
IF exposed or concerned: Get medical advice/attention.
Get medical advice/attention if you feel unwell.

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

Label elements

WHMIS
-

WHMIS
- Other Toxic Effects - D2A
Other Toxic Effects - D2B

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**
Aluminum oxide	**CAS:**1344-28-1	< 48.21%	NDA	**OSHA HCS 2012:** Not Classified - Criteria not met

Aluminum silicate, andalusite	**CAS:**12183-80-1	25.2% TO 28.8%	NDA	**OSHA HCS 2012:** **WHMIS:**
Silicon carbide	**CAS:**409-21-2	6% TO 14%	NDA	**OSHA HCS 2012:** STOT RE 2
Zirconium(IV) silicate (1:1)	**CAS:**14940-68-2	8.82% TO 12%	NDA	**OSHA HCS 2012:** **WHMIS:**
Zirconium	**CAS:**7440-67-7	3.6% TO 7.2%	NDA	**OSHA HCS 2012:** **WHMIS:**
Zirconium oxide	**CAS:**1314-23-4	0.27% TO 4.89%	NDA	**OSHA HCS 2012:** **WHMIS:**
Amorphous silica fume	**CAS:**69012-64-2	1.7% TO 3%	NDA	**OSHA HCS 2012:** STOT RE 1 (Lungs)
Crystalline silica	**CAS:**14808-60-7	< 2.07%	NDA	**OSHA HCS 2012:** STOT RE 1; Carc. 1A **WHMIS:** Other Toxic Effects - D2A
Amorphous/fused silica	**CAS:**60676-86-0	0.27% TO 1.8%	NDA	**OSHA HCS 2012:** **WHMIS:** Other Toxic Effects - D2B
Mullite	**CAS:**1302-93-8	< 1.305%	NDA	**OSHA HCS 2012:** STOT RE 2(Lungs)
Iron oxide	**CAS:**1309-37-1	0% TO 1.16%	NDA	**OSHA HCS 2012:** Data lacking
Titanium dioxide	**CAS:**13463-67-7	< 0.97%	NDA	**OSHA HCS 2012:** Carc. 2
Boron carbide, dust	**CAS:**12069-32-8	< 0.5%	NDA	**OSHA HCS 2012:**
Sodium hydroxide	**CAS:**1310-73-2	< 0.4275%	NDA	**OSHA HCS 2012:** **WHMIS:** Corrosive - E
Silica, amorphous	**CAS:**7631-86-9	< 0.415%	NDA	**OSHA HCS 2012:** Data lacking
Hafnium oxide	**CAS:**12055-23-1	< 0.12%	NDA	**OSHA HCS 2012:** **WHMIS:**
1-Propene, homopolymer	**CAS:**9003-07-0	< 0.1%	NDA	**OSHA HCS 2012:** **WHMIS:**
Magnesium oxide	**CAS:**1309-48-4	< 0.06%	NDA	**OSHA HCS 2012:** Not Classified - Criteria not met
Gluconic acid, monosodium salt, D -	**CAS:**527-07-1	< 0.06%	NDA	**OSHA HCS 2012:**
Rutile (TiO2)	**CAS:**1317-80-2	0.01% TO 0.04%	NDA	**OSHA HCS 2012:** **WHMIS:**
Calcium oxide	**CAS:**1305-78-8	< 0.025%	NDA	**OSHA HCS 2012:** **WHMIS:** Corrosive - E
Potassium oxide	**CAS:**12136-45-7	< 0.014%	NDA	**OSHA HCS 2012:** **WHMIS:**
Cristobalite	**CAS:**14464-46-1	< 0.00225%	NDA	**OSHA HCS 2012:** Carc. 1A;

Section 4: First-Aid Measures

Description of first aid measures

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

Skin
- In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Take off contaminated clothing and wash before reuse. If skin irritation or rash occurs: Get medical advice/attention.

Eye
- In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.

Ingestion
- Rinse mouth. Do not give anything by mouth to an unconscious person.

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
- This product does not burn or support combustion. Use extinguishing agent suitable for type of 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

- 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.
Wear positive pressure self-contained breathing apparatus (SCBA).

Section 6 - Accidental Release Measures

Personal precautions, protective equipment and emergency procedures

Personal Precautions
- Wear appropriate personal protective equipment, avoid direct contact. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not walk through spilled material. Ventilate enclosed areas.

Emergency Procedures
- As an immediate precautionary measure, isolate spill or leak area for at least 25 meters (75 feet) in all directions. Keep unauthorized personnel away. Stay upwind.

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.
Wet down material before clean-up. Use vacuums with high-efficiency particulate air (HEPA) filters or wet-sweeping for clean-up. Never dry sweep or blow dust with compressed air.

Reference to other sections

- Refer to Section 8 - Exposure Controls/Personal Protection and Section 13 - Disposal Considerations.

Section 7 - Handling and Storage

Precautions for safe handling

Handling
- Do not use in areas without adequate ventilation. Do not breathe dust. Avoid contact with skin, eyes, and clothing. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities

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

Specific end use(s)

- Refer to Section 1.2 - Relevant identified uses.

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines						
	Result	**ACGIH**	**Canada Ontario**	**Canada Quebec**	**Mexico**	**NIOSH**
Iron oxide (1309-37-1)	STELs	Not established	Not established	Not established	10 mg/m3 STEL [PPT-CT] (as Fe)	Not established
	TWAs	5 mg/m3 TWA (respirable particulate matter)	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 VLE-PPT	5 mg/m3 TWA (dust and fume, as Fe)
Cristobalite (14464-46-1)	TWAs	0.025 mg/m3 TWA (respirable particulate matter)	0.05 mg/m3 TWA (designated substances regulation, respirable, listed under Silica, crystalline)	0.05 mg/m3 TWAEV (respirable dust)	0.05 mg/m3 TWA VLE-PPT (respirable fraction)	0.05 mg/m3 TWA (respirable dust)
Calcium oxide (1305-78-8)	TWAs	2 mg/m3 TWA	2 mg/m3 TWA	2 mg/m3 TWAEV	2 mg/m3 TWA VLE-PPT	2 mg/m3 TWA
Magnesium oxide (1309-48-4)	TWAs	10 mg/m3 TWA (inhalable particulate matter)	10 mg/m3 TWA (inhalable)	10 mg/m3 TWAEV (fume, as Mg)	10 mg/m3 TWA VLE-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 VLE-PPT; 10 mg/m3 TWA VLE-PPT (inhalable particulate); 3 mg/m3 TWA VLE-PPT (respirable particulate)	Not established
Silica, amorphous (7631-86-9)	TWAs	Not established	Not established	Not established	Not established	6 mg/m3 TWA
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
Titanium dioxide (13463-67-7)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [PPT-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 VLE-PPT (as Ti)	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,	2 mg/m3 TWA VLE-PPT; 10 mg/m3 TWA VLE-PPT (inhalable particulate); 3 mg/m3 TWA VLE-PPT	Not established

				respirable dust)	(respirable particulate)	
Crystalline silica (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable particulate matter)	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 VLE-PPT (respirable fraction)	0.05 mg/m3 TWA (respirable dust)
Zirconium (7440-67-7)	STELs	10 mg/m3 STEL	10 mg/m3 STEL	10 mg/m3 STEV	Not established	10 mg/m3 STEL
	TWAs	5 mg/m3 TWA	5 mg/m3 TWA	5 mg/m3 TWAEV	Not established	5 mg/m3 TWA
Silicon carbide (409-21-2)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [PPT-CT]	Not established
	TWAs	10 mg/m3 TWA (nonfibrous, inhalable particulate matter, particulate matter containing no asbestos and <1% crystalline silica); 3 mg/m3 TWA (nonfibrous, respirable particulate matter, 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 VLE-PPT	10 mg/m3 TWA (total dust); 5 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 VLE-PPT	Not established

Exposure Limits/Guidelines (Con't.)

	Result	OSHA
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)
Cristobalite (14464-46-1)	TWAs	50 µg/m3 TWA (listed under Respirable crystalline silica)
Calcium oxide (1305-78-8)	TWAs	5 mg/m3 TWA
Magnesium oxide (1309-48-4)	TWAs	15 mg/m3 TWA (fume, total particulate)
Sodium hydroxide (1310-73-2)	TWAs	2 mg/m3 TWA

Titanium dioxide (13463-67-7)	TWAs	15 mg/m3 TWA (total dust)
Crystalline silica (14808-60-7)	TWAs	50 µg/m3 TWA (listed under Respirable crystalline silica)
Silicon carbide (409-21-2)	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)

Exposure Control Notations

Mexico

- Aluminum oxide (1344-28-1): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
- Titanium dioxide (13463-67-7): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
- Iron oxide (1309-37-1): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
- Silicon carbide (409-21-2): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)

Canada Ontario

- Cristobalite (14464-46-1): **Designated Substances:** (0.05 mg/m3 TWA (respirable fraction, listed under Silica, crystalline))
- Crystalline silica (14808-60-7): **Designated Substances:** (0.10 mg/m3 TWA (respirable fraction, listed under Silica, crystalline))

Canada Quebec

- Crystalline silica (14808-60-7): **Carcinogens:** (C2 carcinogen - effect suspected in humans)

ACGIH

- Cristobalite (14464-46-1): **Carcinogens:** (A2 - Suspected Human Carcinogen)
- Titanium dioxide (13463-67-7): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Iron oxide (1309-37-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Silicon carbide (409-21-2): **Carcinogens:** (A2 - Suspected Human Carcinogen (fibrous, including whiskers))
- Magnesium oxide (1309-48-4): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
- Crystalline silica (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)
- Zirconium (7440-67-7): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)

Exposure Limits Supplemental

OSHA

- Silica, amorphous (7631-86-9): **Mineral Dusts:** (20 mppcf TWA; (80)/(% SiO2) mg/m3 TWA)
- Cristobalite (14464-46-1): **Mineral Dusts:** ((1/2)(250)/(%SiO2 + 5) mppcf TWA, respirable fraction; (1/2)(10)/(%SiO2 + 2) mg/m3 TWA, respirable fraction)
- Crystalline silica (14808-60-7): **Mineral Dusts:** ((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)

ACGIH

- Cristobalite (14464-46-1): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)
- Titanium dioxide (13463-67-7): **TLV Basis - Critical Effects:** (lower respiratory tract irritation)
- Iron oxide (1309-37-1): **TLV Basis - Critical Effects:** (pneumoconiosis)
- Silicon carbide (409-21-2): **TLV Basis - Critical Effects:** (upper respiratory tract irritation (nonfibrous); cancer (fibrous, including whiskers); mesothelioma (fibrous, including whiskers))
- Magnesium oxide (1309-48-4): **TLV Basis - Critical Effects:** (metal fume fever; upper respiratory tract irritation)
- Crystalline silica (14808-60-7): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)
- Sodium hydroxide (1310-73-2): **TLV Basis - Critical Effects:** (eye, skin and upper respiratory tract irritation)
- Calcium oxide (1305-78-8): **TLV Basis - Critical Effects:** (upper respiratory tract irritation)

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.

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 safety goggles.
Skin/Body	• Wear long sleeves and/or protective coveralls.
General Industrial Hygiene Considerations	• Handle in accordance with good industrial hygiene and safety practice. Do not get in eyes or on skin or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.
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
STEV = Short Term Exposure Value
TWA = Time-Weighted Averages are based on 8h/day, 40h/week exposures
TWAEV = Time-Weighted Average Exposure Value

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	3200 °F(1760 °C)
Decomposition Temperature	No data available	pH	Not relevant
Specific Gravity/Relative Density	= 2.53 Water=1	Water Solubility	Negligible < 0.1 %
Viscosity	No data available	Explosive Properties	No data available
Oxidizing Properties:	No data available		
Volatility			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available	VOC (Wt.)	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 will not occur.

Conditions to avoid

- No data available.

Incompatible materials

- No data available

Hazardous decomposition products

- No data available

Section 11 - Toxicological Information

Information on toxicological effects

Components		
Sodium hydroxide (< 0.4275%)	1310-73-2	**Acute Toxicity:** Skin-Rabbit TCLo • 25 pph; *Behavioral*:**Food intake (animal)**; *Nutritional and Gross Metabolic:Changes in Chemistry or Temperature*:**Body temperature increase**; *Skin and Appendages:After topical exposure*:**Primary irritation**; **Irritation:** Skin-Rabbit • 500 mg 24 Hour(s) • Severe irritation
Calcium oxide (< 0.025%)	1305-78-8	**Acute Toxicity:** Intraperitoneal-Mouse LD50 • 3059 mg/kg
1-Propene, homopolymer (< 0.1%)	9003-07-0	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • >8 g/kg
Rutile (TiO2) (0.01% TO 0.04%)	1317-80-2	**Multi-dose Toxicity:** Inhalation-Mouse TCLo • 300000 µg/kg 30 Day(s)-Intermittent; *Brain and Coverings*:**Other degenerative changes**; *Biochemical:Metabolism (intermediary)*:**Lipids, including transport**; *Biochemical:Metabolism (intermediary)*:**Effect on inflammation or mediation of inflammation**

GHS Properties	Classification
Acute toxicity	**OSHA HCS 2012** • No data available
Skin corrosion/Irritation	**OSHA HCS 2012** • No data available
Serious eye damage/Irritation	**OSHA HCS 2012** • No data available
Skin sensitization	**OSHA HCS 2012** • Skin Sensitizer 1
Respiratory sensitization	**OSHA HCS 2012** • No data available
Aspiration Hazard	**OSHA HCS 2012** • No data available
Carcinogenicity	**OSHA HCS 2012** • Carcinogenicity 1A
Germ Cell Mutagenicity	**OSHA HCS 2012** • Germ Cell Mutagenicity 1A
Toxicity for Reproduction	**OSHA HCS 2012** • Toxic to Reproduction 1A
STOT-SE	**OSHA HCS 2012** • No data available
STOT-RE	**OSHA HCS 2012** • Specific Target Organ Toxicity Repeated Exposure 1

Target Organs
- Lungs

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

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

Potential Health Effects

Inhalation

Acute (Immediate)
- Nuisance dust may affect the lungs but reactions are typically reversible.

Chronic (Delayed)
- Chronic overexposure to dust containing respirable sized crystalline silica can cause delayed lung injury (silicosis).

Skin

Acute (Immediate)
- May cause skin sensitization. Symptoms include redness, and skin rash. Exposure to dust may cause mechanical irritation.

Chronic (Delayed)
- No data available.

Eye

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

Mutagenic Effects
- Repeated and prolonged exposure may cause mutagenic effects.

Carcinogenic Effects
- May cause cancer.

Carcinogenic Effects		
	CAS	IARC
Cristobalite	14464-46-1	Group 1-Carcinogenic
Titanium dioxide	13463-67-7	Group 2B-Possible Carcinogen

Reproductive Effects
- Repeated and prolonged exposure may cause reproductive effects.

Key to abbreviations

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 known.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
- Not relevant.

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**
1-Propene, homopolymer	9003-07-0	No	No	No
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Aluminum silicate, andalusite	12183-80-1	No	No	No
Amorphous/fused silica	60676-86-0	Yes	Yes	No
Boron carbide, dust	12069-32-8	No	No	No
Calcium oxide	1305-78-8	Yes	Yes	Yes
Cristobalite	14464-46-1	Yes	Yes	Yes
Crystalline silica	14808-60-7	Yes	Yes	Yes
Gluconic acid, monosodium salt, D-	527-07-1	No	No	No
Hafnium oxide	12055-23-1	No	No	No
Iron oxide	1309-37-1	Yes	Yes	Yes
Magnesium oxide	1309-48-4	Yes	Yes	Yes
Mullite	1302-93-8	No	No	No
Potassium oxide	12136-45-7	No	Yes	No
Rutile (TiO2)	1317-80-2	No	No	Yes
Amorphous silica fume	69012-64-2	Yes	Yes	No
Silica, amorphous	7631-86-9	Yes	No	Yes

Silicon carbide	409-21-2	Yes	Yes	Yes
Sodium hydroxide	1310-73-2	Yes	Yes	Yes
Titanium dioxide	13463-67-7	Yes	Yes	Yes
Zirconium	7440-67-7	Yes	Yes	Yes
Zirconium oxide	1314-23-4	Yes	No	No
Zirconium(IV) silicate (1:1)	14940-68-2	No	No	No

Inventory				
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**TSCA**
1-Propene, homopolymer	9003-07-0	Yes	No	Yes
Aluminum oxide	1344-28-1	Yes	No	Yes
Aluminum silicate, andalusite	12183-80-1	No	Yes	Yes
Amorphous/fused silica	60676-86-0	Yes	No	Yes
Boron carbide, dust	12069-32-8	Yes	No	Yes
Calcium oxide	1305-78-8	Yes	No	Yes
Cristobalite	14464-46-1	Yes	No	Yes
Crystalline silica	14808-60-7	Yes	No	Yes
Gluconic acid, monosodium salt, D-	527-07-1	Yes	No	Yes
Hafnium oxide	12055-23-1	Yes	No	Yes
Iron oxide	1309-37-1	Yes	No	Yes
Magnesium oxide	1309-48-4	Yes	No	Yes
Mullite	1302-93-8	Yes	No	Yes
Potassium oxide	12136-45-7	Yes	No	Yes
Rutile (TiO2)	1317-80-2	Yes	No	Yes
Amorphous silica fume	69012-64-2	Yes	No	Yes
Silica, amorphous	7631-86-9	Yes	No	Yes
Silicon carbide	409-21-2	Yes	No	Yes
Sodium hydroxide	1310-73-2	Yes	No	Yes
Titanium dioxide	13463-67-7	Yes	No	Yes
Zirconium	7440-67-7	Yes	No	Yes
Zirconium oxide	1314-23-4	Yes	No	Yes
Zirconium(IV) silicate (1:1)	14940-68-2	Yes	No	Yes

Canada

Labor

Canada - WHMIS 1988 - Classifications of Substances

• Zirconium(IV) silicate (1:1)	14940-68-2	Uncontrolled product according to WHMIS classification criteria
• Potassium oxide	12136-45-7	E

• Gluconic acid, monosodium salt, D-	527-07-1	Uncontrolled product according to WHMIS classification criteria
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• 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
• Magnesium oxide	1309-48-4	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.)
• Zirconium	7440-67-7	Not Listed
• Aluminum oxide	1344-28-1	Uncontrolled product according to WHMIS classification criteria
• Silicon carbide	409-21-2	Uncontrolled product according to WHMIS classification criteria
• Cristobalite	14464-46-1	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.)
• 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
• Boron carbide, dust	12069-32-8	Uncontrolled product according to WHMIS classification criteria
		D2A (In certain cases, this classification does not apply.

• Crystalline silica	14808-60-7	For more information, consult the section Substance Specific Issues - Silica, crystalline, encapsulated on Health Canada's WHMIS Division website.)
• 1-Propene, homopolymer	9003-07-0	Uncontrolled product according to WHMIS classification criteria

Canada - WHMIS 1988 - Ingredient Disclosure List

• Zirconium(IV) silicate (1:1)	14940-68-2	1 %
• Potassium oxide	12136-45-7	Not Listed
• Gluconic acid, monosodium salt, D-	527-07-1	Not Listed
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	1 %
• Iron oxide	1309-37-1	1 %
• Magnesium oxide	1309-48-4	1 %
• Sodium hydroxide	1310-73-2	1 %
• Titanium dioxide	13463-67-7	Not Listed
• Zirconium	7440-67-7	1 %
• Aluminum oxide	1344-28-1	1 %
• Silicon carbide	409-21-2	Not Listed
• Cristobalite	14464-46-1	1 %
• Silica, amorphous	7631-86-9	1 %
• Amorphous/fused silica	60676-86-0	1 %
• Zirconium oxide	1314-23-4	Not Listed
• Boron carbide, dust	12069-32-8	Not Listed
• Crystalline silica	14808-60-7	1 %
• 1-Propene, homopolymer	9003-07-0	Not Listed

United States

Environment

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

• Zirconium(IV) silicate (1:1)	14940-68-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Gluconic acid, monosodium salt, D-	527-07-1	Not Listed
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Magnesium oxide	1309-48-4	Not Listed
• Sodium hydroxide	1310-73-2	1000 lb final RQ; 454 kg final RQ
• Titanium dioxide	13463-67-7	Not Listed
• Zirconium	7440-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed

• Silicon carbide	409-21-2	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Boron carbide, dust	12069-32-8	Not Listed
• Crystalline silica	14808-60-7	Not Listed
• 1-Propene, homopolymer	9003-07-0	Not Listed

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

• Zirconium(IV) silicate (1:1)	14940-68-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Gluconic acid, monosodium salt, D-	527-07-1	Not Listed
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Magnesium oxide	1309-48-4	Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Zirconium	7440-67-7	Not Listed
• Aluminum oxide	1344-28-1	1.0 % de minimis concentration (fibrous forms)
• Silicon carbide	409-21-2	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Boron carbide, dust	12069-32-8	Not Listed
• Crystalline silica	14808-60-7	Not Listed
• 1-Propene, homopolymer	9003-07-0	Not Listed

United States - California

Environment

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

• Zirconium(IV) silicate (1:1)	14940-68-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Gluconic acid, monosodium salt, D-	527-07-1	Not Listed
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Magnesium oxide	1309-48-4	Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	carcinogen, 9/2/2011 (airborne, unbound particles of respirable size)
• Zirconium	7440-67-7	Not Listed

• Aluminum oxide	1344-28-1	Not Listed
• Silicon carbide	409-21-2	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Boron carbide, dust	12069-32-8	Not Listed
• Crystalline silica	14808-60-7	Not Listed
• 1-Propene, homopolymer	9003-07-0	Not Listed

United States - Pennsylvania

Labor

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

• Zirconium(IV) silicate (1:1)	14940-68-2	Not Listed
• Potassium oxide	12136-45-7	Not Listed
• Gluconic acid, monosodium salt, D-	527-07-1	Not Listed
• Rutile (TiO2)	1317-80-2	Not Listed
• Hafnium oxide	12055-23-1	Not Listed
• Aluminum silicate, andalusite	12183-80-1	Not Listed
• Mullite	1302-93-8	Not Listed
• Amorphous silica fume	69012-64-2	Not Listed
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Magnesium oxide	1309-48-4	Not Listed
• Sodium hydroxide	1310-73-2	
• Titanium dioxide	13463-67-7	Not Listed
• Zirconium	7440-67-7	Not Listed
• Aluminum oxide	1344-28-1	
• Silicon carbide	409-21-2	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Zirconium oxide	1314-23-4	Not Listed
• Boron carbide, dust	12069-32-8	Not Listed
• Crystalline silica	14808-60-7	Not Listed
• 1-Propene, homopolymer	9003-07-0	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
- 18/July/2018

Last Revision Date
- 18/July/2018

Preparation Date
- 18/July/2018

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Key to abbreviations

NDA = No data available