Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • **Reno Cast 80 UL-AL**

Product Code • 158700

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 • Carcinogenicity 1A
Specific Target Organ Toxicity Repeated Exposure 1

Label elements

OSHA HCS 2012

DANGER

Hazard statements • 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 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

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**	**Comments**
Bauxite	**CAS:**1318-16-7	36.96% TO 51.48%	NDA	**OSHA HCS 2012:** STOT RE 2 (Lungs)	NDA
Aluminum oxide	**CAS:**1344-28-1	14.775% TO 18%	Inhalation-Rat LC50 • 0.2 mg/L 5 Hour(s) 28 Week(s)	**OSHA HCS 2012:** Not Classified	NDA
Mullite	**CAS:**1302-93-8	11.55% TO 13.86%	NDA	**OSHA HCS 2012:** STOT RE 2 (Lungs)	NDA
Silica, amorphous	**CAS:**7631-86-9	2.748% TO 7.27%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Amorphous silica fume	**CAS:**69012-64-2	2.4% TO 7%	NDA	**OSHA HCS 2012:** STOT RE 1 (Lungs)	NDA
Cement, alumina, chemicals	**CAS:**65997-16-2	2% TO 5%	NDA	**OSHA HCS 2012:** Not Classified	NDA

NON WETTING AGENT	*Proprietary*	1.88% TO 4.875%	Ingestion/Oral-Rat LD50 • 4250 mg/kg	**OSHA HCS 2012:** Not Classified	NDA
Aluminum(III) silicate (2:1)	**CAS:**1302-76-7	0.85% TO 1.9%	NDA	**OSHA HCS 2012:** STOT RE 2 (Lungs)	NDA
Titanium dioxide	**CAS:**13463-67-7	1.375% TO 1.595%	NDA	**OSHA HCS 2012:** Carc. 2	NDA
Iron oxide	**CAS:**1309-37-1	0.84% TO 0.92%	NDA	**OSHA HCS 2012:** Not Classified	NDA
Cristobalite	**CAS:**14464-46-1	0.465% TO 0.593%	NDA	**OSHA HCS 2012:** Carc. 1A	NDA
Quartz	**CAS:**14808-60-7	0.05% TO 0.27%	NDA	**OSHA HCS 2012:** Carc. 1A; STOT RE 1 (Lungs)	NDA
Limestone	**CAS:**1317-65-3	0.02% TO 0.145%	NDA	**OSHA HCS 2012:** STOT RE 2 (Lung, Inhl)	NDA
DISPERSING AGENT 1	*Proprietary*	< 0.1395%	Ingestion/Oral-Rat LD50 • 3120 mg/kg Skin-Rabbit LD50 • >4640 mg/kg	**OSHA HCS 2012:** Eye Irrit. 2A; Skin Irrit. 2; STOT SE 3: Resp. Irrit.	NDA
Diphosphoric acid, sodium salt (1:4)	**CAS:**7722-88-5	< 0.0075%	Ingestion/Oral-Rat LD50 • 4 g/kg	**OSHA HCS 2012:** Exposure limits	NDA
Formaldehyde	**CAS:**50-00-0	<= 0.00002%	Ingestion/Oral-Rat LD50 • 100 mg/kg Inhalation-Rat LC50 • 203 mg/m³ Skin-Rabbit LD50 • 270 mg/kg	**OSHA HCS 2012:** Exposure limits	NDA

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. 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 walk through spilled material. Ensure adequate ventilation to remove vapors, fumes, dust etc. Wear appropriate personal protective equipment, avoid direct contact.

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
- Use good safety and industrial hygiene practices. Use only in well ventilated areas. Wear appropriate personal protective equipment, avoid direct contact. Wear long sleeves and/or protective coveralls. Do not breathe dust. Avoid contact with skin, eyes, and clothing. Minimize dust generation and accumulation. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. 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.

Conditions for safe storage, including any incompatibilities

Storage
- Keep container closed. Store in a covered location. Store in a cool, dry place. 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 Manitoba**	**Canada Ontario**	**Canada Quebec**	**Mexico**
Formaldehyde (50-00-0)	Ceilings	0.3 ppm Ceiling	Not established	1.5 ppm Ceiling	2 ppm Ceiling; 3 mg/m3 Ceiling	2 ppm Ceiling; 3 mg/m3 Ceiling
	Designated Substances	Not established	Present	Not established	Not established	Not established
	STELs	Not established	Not established	1.0 ppm STEL	Not established	Not established
Diphosphoric acid, sodium salt (1:4) (7722-88-5)	TWAs	Not established	Not established	5 mg/m3 TWA	5 mg/m3 TWAEV	Not established
Limestone (1317-65-3)	STELs	Not established	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT]
	TWAs	Not established	Not established	Not established	10 mg/m3 TWAEV (Limestone, containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m3 TWA LMPE-PPT
Quartz (14808-60-7)	TWAs	0.025 mg/m3 TWA (respirable fraction)	Not established	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)
Cristobalite (14464-46-1)	TWAs	0.025 mg/m3 TWA (respirable fraction)	Not established	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 LMPE-PPT (respirable fraction)
Iron oxide (1309-37-1)	STELs	Not established	Not established	Not established	Not established	10 mg/m3 STEL [LMPE-CT] (as Fe)
	TWAs	5 mg/m3 TWA (respirable fraction)	Not established	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
Titanium dioxide (13463-67-7)	STELs	Not established	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT] (as Ti)
	TWAs	10 mg/m3 TWA	Not established	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)
		10 mg/m3 TWA			10 mg/m3 TWAEV (including dust, inert	

Cement, alumina, chemicals	TWAs	(inhalable particles, recommended); 3 mg/m3 TWA (respirable particles, recommended) *as Particulates not otherwise classified (PNOC)*	Not established	10 mg/m3 TWA (inhalable); 3 mg/m3 TWA (respirable) *as Particulates not otherwise classified (PNOC)*	or nuisance particulates; containing no Asbestos and <1% Crystalline silica, total dust) *as Particulates not otherwise classified (PNOC)*	Not established
Amorphous silica fume (69012-64-2)	TWAs	Not established	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)
Aluminum oxide (1344-28-1)	TWAs	1 mg/m3 TWA (respirable fraction) *as Aluminum insoluble compounds*	Not established	1 mg/m3 TWA (respirable) *as Aluminum insoluble compounds*	10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust, as Al)	10 mg/m3 TWA LMPE-PPT

Exposure Limits/Guidelines (Con't.)

	Result	NIOSH	OSHA
Formaldehyde (50-00-0)	STELs	Not established	2 ppm STEL (see 29 CFR 1910.1048)
	TWAs	0.016 ppm TWA	0.75 ppm TWA
	Ceilings	0.1 ppm Ceiling (15 min)	Not established
Diphosphoric acid, sodium salt (1:4) (7722-88-5)	TWAs	5 mg/m3 TWA	Not established
Limestone (1317-65-3)	TWAs	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Quartz (14808-60-7)	TWAs	0.05 mg/m3 TWA (respirable dust)	Not established
Cristobalite (14464-46-1)	TWAs	0.05 mg/m3 TWA (respirable dust)	Not established
Iron oxide (1309-37-1)	TWAs	5 mg/m3 TWA (dust and fume, as Fe)	10 mg/m3 TWA (fume); 15 mg/m3 TWA (total dust, listed under Rouge); 5 mg/m3 TWA (respirable fraction, listed under Rouge)
Titanium dioxide (13463-67-7)	TWAs	Not established	15 mg/m3 TWA (total dust)
Cement, alumina, chemicals	TWAs	Not established	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) *as Particulates not otherwise classified (PNOC)*
Silica, amorphous (7631-86-9)	TWAs	6 mg/m3 TWA	Not established
Aluminum oxide (1344-28-1)	TWAs	Not established	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Exposure Control Notations

Mexico

•Iron oxide (1309-37-1): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
•Titanium dioxide (13463-67-7): **Carcinogens:** (A4 - Not classifiable as a human carcinogen)
•Formaldehyde (50-00-0): **Carcinogens:** (A2 - Suspected human carcinogen)
•Aluminum oxide (1344-28-1): **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))
•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)
•Formaldehyde (50-00-0): **Carcinogens:** (C2 carcinogen - effect suspected in humans)

ACGIH
•Iron oxide (1309-37-1): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
•Titanium dioxide (13463-67-7): **Carcinogens:** (A4 - Not Classifiable as a Human Carcinogen)
•Cristobalite (14464-46-1): **Carcinogens:** (A2 - Suspected Human Carcinogen)
•Quartz (14808-60-7): **Carcinogens:** (A2 - Suspected Human Carcinogen)
•Formaldehyde (50-00-0): **Carcinogens:** (A2 - Suspected Human Carcinogen) | **Sensitizers:** (Sensitizer)
•Aluminum oxide as Aluminum insoluble compounds: **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)(30)/(%SiO2 + 2) mg/m3 TWA, total dust; (1/2)(250)/(%SiO2 + 5) mppcf TWA, respirable fraction; (1/2)(10)/(%SiO2 + 2) mg/m3 TWA, respirable fraction)
•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)

ACGIH
•Iron oxide (1309-37-1): **TLV Basis - Critical Effects:** (pneumoconiosis)
•Titanium dioxide (13463-67-7): **TLV Basis - Critical Effects:** (lower respiratory tract irritation) | **Notice of Intended Changes (TLVs):** (1 mg/m3 TWA (respirable fraction); A3 - confirmed animal carcinogen with unknown relevance to humans; TLV basis: lower respiratory tract irritation, pneumoconiosis)
•Cristobalite (14464-46-1): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)
•Quartz (14808-60-7): **TLV Basis - Critical Effects:** (lung cancer; pulmonary fibrosis)
•Formaldehyde (50-00-0): **TLV Basis - Critical Effects:** (eye and upper respiratory tract irritation)
•Aluminum oxide as Aluminum insoluble compounds: **TLV Basis - Critical Effects:** (pneumoconiosis; lower respiratory tract irritation; neurotoxicity)

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	• Do not breathe 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 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	= 2.53 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 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		
Silica, amorphous (2.748% TO 7.27%)	7631-86-9	**Irritation:** Eye-Rabbit • 25 mg 24 Hour(s) • Mild irritation
Titanium dioxide (1.375% TO 1.595%)	13463-67-7	**Irritation:** Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation; **Tumorigen / Carcinogen:** Inhalation-Rat TCLo • 250 mg/m³ 6 Hour(s) 2 Year(s)-Intermittent; *Tumorigenic*:**Carcinogenic by RTECS criteria**; *Lungs, Thorax, or Respiration*:**Tumors**
Cristobalite (0.465% TO 0.593%)	14464-46-1	**Acute Toxicity:** Inhalation-Human TCLo • 16 mppcf 8 Hour(s) 17.9 Year(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Fibrosis, focal (pneumoconiosis)**; *Lungs, Thorax, or Respiration*:**Cough**; *Lungs, Thorax, or Respiration*:**Dyspnea**; **Multi-dose Toxicity:** Inhalation-Mouse TCLo • 43 mg/m³ 5 Hour(s) 9 Day(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Pleural effusion**; *Lungs, Thorax, or Respiration*:**Other changes**
DISPERSING AGENT 1 (< 0.1395%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 3120 mg/kg; *Behavioral*:**Somnolence (general depressed activity)**; *Behavioral*:**Coma**; **Irritation:** Skin-Rabbit • 500 mg 24 Hour(s) • Moderate irritation
NON WETTING AGENT (1.88% TO 4.875%)	*Proprietary*	**Acute Toxicity:** Ingestion/Oral-Rat LD50 • 4250 mg/kg; *Behavioral*:**Somnolence (general depressed activity)**; *Behavioral*:**Ataxia**; *Lungs, Thorax, or Respiration*:**Respiratory depression**; **Reproductive:** Intraperitoneal-Mouse TDLo • 3200 mg/kg (9D preg); *Reproductive Effects:Effects on Fertility*:**Post-implantation mortality**
Limestone (0.02% TO 0.145%)	1317-65-3	**Multi-dose Toxicity:** Inhalation-Rat TCLo • 84 mg/m³ 4 Hour(s) 40 Week(s)-Intermittent; *Lungs, Thorax, or Respiration*:**Fibrosis (interstitial)**; *Liver*:**Other changes**; *Kidney, Ureter, and Bladder*:**Other changes**

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** • Data lacking
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

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)
- 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). 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 mechanical irritation.

Chronic (Delayed)
- No data available.

Eye

Acute (Immediate)
- 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	OSHA	IARC	NTP
Formaldehyde	50-00-0	Specifically Regulated Carcinogen	Group 1-Carcinogenic	Known Human Carcinogen
Quartz	14808-60-7	Not Listed	Group 1-Carcinogenic	Known Human Carcinogen
Cristobalite	14464-46-1	Not Listed	Group 1-Carcinogenic	Not Listed
Titanium dioxide	13463-67-7	Not Listed	Group 2B-Possible Carcinogen	Not Listed

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
- Chronic

State Right To Know				
Component	**CAS**	**MA**	**NJ**	**PA**
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Bauxite	1318-16-7	No	No	No
Cristobalite	14464-46-1	Yes	Yes	Yes
Diphosphoric acid, sodium salt (1:4)	7722-88-5	Yes	Yes	Yes
Formaldehyde	50-00-0	Yes	Yes	Yes
Limestone	1317-65-3	Yes	Yes	Yes
Quartz	14808-60-7	Yes	Yes	Yes
Silica, amorphous	7631-86-9	Yes	Yes	Yes
Titanium dioxide	13463-67-7	Yes	Yes	Yes
DISPERSING AGENT 1	*Proprietary*	Yes	No	Yes

Inventory				
Component	**CAS**	**Canada DSL**	**Canada NDSL**	**TSCA**
Aluminum oxide	1344-28-1	Yes	No	Yes
Bauxite	1318-16-7	No	No	No
Cristobalite	14464-46-1	Yes	No	Yes
Diphosphoric acid, sodium salt (1:4)	7722-88-5	Yes	No	Yes
Formaldehyde	50-00-0	Yes	No	Yes
Limestone	1317-65-3	No	Yes	Yes

Quartz	14808-60-7	Yes	No	Yes
Silica, amorphous	7631-86-9	Yes	No	Yes
Titanium dioxide	13463-67-7	Yes	No	Yes
DISPERSING AGENT 1	*Proprietary*	Yes	No	Yes

Canada

Labor

Canada - WHMIS - Classifications of Substances

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	A, B1, D1A, D2A, D2B; B3, D1A, D2A, D2B, E (regulated under Formol)
• 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.)
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	D2B
• Aluminum oxide	1344-28-1	Uncontrolled product according to WHMIS classification criteria
• Limestone	1317-65-3	D2A
• 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
• 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

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	1 %
• Formaldehyde	50-00-0	0.1 %
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	1 %
• Aluminum oxide	1344-28-1	1 %
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	1 %

• Silica, amorphous	7631-86-9	1 %
• Quartz	14808-60-7	1 %

Environment

Canada - CEPA - Priority Substances List

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	Priority Substance List 2 (substance considered toxic)
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

Canada - CEPA - Schedule I - List of Toxic Substances

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

United States

Labor

U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	1000 lb TQ
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - OSHA - Specifically Regulated Chemicals

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	2 ppm STEL (See 29 CFR 1910.1048, 15 min); 0.5 ppm Action Level (See 29 CFR 1910.1048); 0.75 ppm TWA (See 29 CFR 1910.1048)
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed

• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

Environment

U.S. - CAA (Clean Air Act) - 1990 Hazardous Air Pollutants

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

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

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	100 lb final RQ; 45.4 kg final RQ
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances EPCRA RQs

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	100 lb EPCRA RQ
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - CERCLA/SARA - Section 302 Extremely Hazardous Substances TPQs

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	500 lb TPQ
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

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

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	0.1 % de minimis concentration
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	1.0 % de minimis concentration (fibrous forms)
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Basis for Listing - Appendix VII

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	Included in waste streams: K009, K010, K038, K040, K156, K157
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - Hazardous Constituents - Appendix VIII to 40 CFR 261

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	waste number U122
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - RCRA (Resource Conservation & Recovery Act) - U Series Wastes - Acutely Toxic Wastes & Other Hazardous Characteristics

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	waste number U122
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

United States - California

Environment

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

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	carcinogen, initial date 1/1/88 (gas)
• Titanium dioxide	13463-67-7	carcinogen, initial date 9/2/11 (airborne, unbound particles of respirable size)
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	carcinogen, initial date 10/1/88 (airborne particles of respirable size)

U.S. - California - Proposition 65 - No Significant Risk Levels (NSRL)

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	40 µg/day NSRL (gas)
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

United States - Pennsylvania

Labor

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

• DISPERSING AGENT 1	*Proprietary*	
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Quartz	14808-60-7	Not Listed

U.S. - Pennsylvania - RTK (Right to Know) - Special Hazardous Substances

• DISPERSING AGENT 1	*Proprietary*	Not Listed
• Bauxite	1318-16-7	Not Listed
• Formaldehyde	50-00-0	
• Titanium dioxide	13463-67-7	Not Listed
• Diphosphoric acid, sodium salt (1:4)	7722-88-5	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Limestone	1317-65-3	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	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
- 06/April/2015

Preparation Date
- 29/October/2012

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Key to abbreviations

NDA = No data available