

## Safety Data Sheet

**Section 1: Identification****Product identifier****Product Name** • **Ladle Cast AL 75****Product Code** • 139700**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.  
PO 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 Irritation 2 - H315  
Serious Eye Damage 1 - H318  
Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation - H335  
Carcinogenicity 1A - H350  
Specific Target Organ Toxicity Repeated Exposure 1 - H372**Label elements****OSHA HCS 2012****DANGER****Hazard statements** • Causes skin irritation - H315  
Causes serious eye damage - H318  
May cause respiratory irritation - H335  
May cause cancer. - H350  
Causes damage to organs - Lung through prolonged or repeated exposure - H372

## Precautionary statements

- Prevention** • Obtain special instructions before use. - P201  
Do not handle until all safety precautions have been read and understood. - P202  
Do not breathe dust. - P260  
Wash thoroughly after handling. - P264  
Do not eat, drink or smoke when using this product. - P270  
Use only outdoors or in a well-ventilated area. - P271  
Wear protective gloves/protective clothing/eye protection/face protection. - P280
- Response** • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. - P304+P340  
Call a POISON CENTER or doctor/physician if you feel unwell. - P312  
If on skin: Wash with plenty of water .  
Specific treatment, see supplemental first aid information. - P321  
Take off contaminated clothing and wash before reuse. - P362  
If skin irritation occurs: Get medical advice/attention. - P332+P313  
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. - P305+P351+P338  
Immediately call a POISON CENTER or doctor/physician. - P310  
IF exposed or concerned: Get medical advice/attention. - P308+P313  
Get medical advice/attention if you feel unwell. - P314
- Storage/Disposal** • Store in a well-ventilated place. Keep container tightly closed. - P403+P233  
Dispose of content and/or container in accordance with local, regional, national, and/or international regulations. - P501

## 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  
Corrosive - E

## Label elements

### WHMIS



- Other Toxic Effects - D2A  
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
Aluminum calcium oxide	CAS:12042-68-1	15% TO 32%	NDA	OSHA HCS 2012: Eye Dam. 1; Skin Irrit. 2; STOT SE 3: Resp. Irrit	NDA
Mullite	CAS:1302-93-8	21.75% TO 27.5%	NDA	OSHA HCS 2012: STOT RE 2 (Lungs)	NDA
Microspheres	Proprietary	16.25% TO 24.3%	NDA	OSHA HCS 2012: STOT RE 2 (Lungs)	NDA
Cristobalite	CAS:14464-46-1	4.504% TO 9.255%	NDA	OSHA HCS 2012: Carc. 1A	NDA
Silica, amorphous	CAS:7631-86-9	3.045% TO 7.568%	NDA	OSHA HCS 2012: Not Classified	NDA
Non-wetting agent	Proprietary	4.7% TO 5.85%	Ingestion/Oral-Rat LD50 • 4417 mg/kg	OSHA HCS 2012: Not Classified	NDA
Amorphous/fused silica	CAS:60676-86-0	0% TO 1.92%	NDA	OSHA HCS 2012: Not Classified	NDA
Iron oxide	CAS:1309-37-1	0.002% TO 1.282%	NDA	OSHA HCS 2012: Not Classified	NDA
Titanium dioxide	CAS:13463-67-7	0.04% TO 1.2375%	NDA	OSHA HCS 2012: Carc. 2	NDA
Quartz	CAS:14808-60-7	<= 0.554%	NDA	OSHA HCS 2012: Carc. 1A; STOT RE 1 (Lungs)	NDA
Magnesium oxide	CAS:1309-48-4	0% TO 0.192%	NDA	OSHA HCS 2012: Not Classified	NDA
Limestone	CAS:1317-65-3	0.05% TO 0.174%	NDA	OSHA HCS 2012: STOT RE 2 (Lung, inhalation)	NDA
Sodium hydroxide	CAS:1310-73-2	0% TO 0.16%	NDA	OSHA HCS 2012: Skin. Corr. 1B; Eye Corr. 1	NDA
1-Propene, homopolymer	CAS:9003-07-0	< 0.1089%	Ingestion/Oral-Rat LD50 • >8 g/kg	OSHA HCS 2012: Not Classified	NDA
Zirconium	CAS:7440-67-7	0% TO 0.0835%	NDA	OSHA HCS 2012: Exposure limit(s)	NDA
Sodium silicate	CAS:1344-09-8	0% TO 0.0675%	Ingestion/Oral-Rat LD50 • 1960 mg/kg Skin-Rabbit LD50 • >4640 mg/kg	OSHA HCS 2012: Skin Irrit 2, Eye Irrit 2, Acute Tox 4 (orl)	NDA
Calcium oxide	CAS:1305-78-8	0% TO 0.064%	NDA	OSHA HCS 2012: Exposure limit(s)	NDA
Formaldehyde	CAS:50-00-0	0% TO 0.000055%	Ingestion/Oral-Rat LD50 • 100 mg/kg Inhalation-Rat LC50 • 250 ppm 4 Hour(s) Skin-Rabbit LD50 • 270 µL/kg	OSHA HCS 2012: Exposure limit(s)	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 the patient. Consideration should be given to the possibility that overexposure to materials other 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 unavailable, 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**

<b>Exposure Limits/Guidelines</b>						
	<b>Result</b>	<b>ACGIH</b>	<b>Canada Ontario</b>	<b>Canada Quebec</b>	<b>Mexico</b>	<b>NIOSH</b>
Formaldehyde (50-00-0)	Ceilings	0.3 ppm Ceiling	1.5 ppm Ceiling	2 ppm Ceiling; 3 mg/m <sup>3</sup> Ceiling	2 ppm Ceiling; 3 mg/m <sup>3</sup> Ceiling	0.1 ppm Ceiling (15 min)
	STELs	Not established	1.0 ppm STEL	Not established	Not established	Not established
	TWAs	Not established	Not established	Not established	Not established	0.016 ppm TWA
Sodium hydroxide (1310-73-2)	Ceilings	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> Ceiling	2 mg/m <sup>3</sup> Ceiling
Zirconium as Zirconium compounds	STELs	10 mg/m <sup>3</sup> STEL	10 mg/m <sup>3</sup> STEL	10 mg/m <sup>3</sup> STEV	10 mg/m <sup>3</sup> STEL [LMPE-CT] (as Zr) <i>as Zirconium compounds</i>	10 mg/m <sup>3</sup> STEL
	TWAs	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWA	5 mg/m <sup>3</sup> TWAEV	5 mg/m <sup>3</sup> TWA LMPE-PPT (as Zr) <i>as Zirconium compounds</i>	5 mg/m <sup>3</sup> TWA
Calcium oxide (1305-78-8)	TWAs	2 mg/m <sup>3</sup> TWA	2 mg/m <sup>3</sup> TWA	2 mg/m <sup>3</sup> TWAEV	2 mg/m <sup>3</sup> TWA LMPE-PPT	2 mg/m <sup>3</sup> TWA
Magnesium oxide (1309-48-4)	TWAs	10 mg/m <sup>3</sup> TWA (inhalable fraction)	10 mg/m <sup>3</sup> TWA (inhalable)	10 mg/m <sup>3</sup> TWAEV (fume, as Mg)	10 mg/m <sup>3</sup> TWA LMPE-PPT (fume, as Mg)	Not established
Amorphous/fused silica (60676-86-0)	TWAs	Not established	0.1 mg/m <sup>3</sup> TWA (respirable)	0.1 mg/m <sup>3</sup> TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)	0.1 mg/m <sup>3</sup> TWA LMPE-PPT; 10 mg/m <sup>3</sup> TWA LMPE-PPT (inhalable particulate); 3 mg/m <sup>3</sup> TWA LMPE-PPT (respirable particulate)	Not established
Iron oxide (1309-37-1)	STELs	Not established	Not established	Not established	10 mg/m <sup>3</sup> STEL [LMPE-CT] (as Fe)	Not established
	TWAs	5 mg/m <sup>3</sup> TWA (respirable fraction)	5 mg/m <sup>3</sup> TWA (respirable)	5 mg/m <sup>3</sup> TWAEV (dust and fume, as Fe); 10 mg/m <sup>3</sup> TWAEV (containing no Asbestos and <1% Crystalline silica, regulated)	5 mg/m <sup>3</sup> TWA LMPE-PPT	5 mg/m <sup>3</sup> TWA (dust and fume, as Fe)

				under Rouge, total dust)		
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
Limestone (1317-65-3)	STELs	Not established	Not established	Not established	20 mg/m3 STEL [LMPE-CT]	Not established
	TWAs	Not established	Not established	10 mg/m3 TWAEV (Limestone, 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)
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)
Silica, amorphous (7631-86-9)	TWAs	Not established	Not established	Not established	Not established	6 mg/m3 TWA
Cristobalite (14464-46-1)	TWAs	0.025 mg/m3 TWA (respirable fraction)	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)	0.05 mg/m3 TWA (respirable dust)

### Exposure Limits/Guidelines (Con't.)

	Result	OSHA
Formaldehyde (50-00-0)	STELs	2 ppm STEL (see 29 CFR 1910.1048)
	TWAs	0.75 ppm TWA
Sodium hydroxide (1310-73-2)	TWAs	2 mg/m3 TWA
Zirconium	TWAs	5 mg/m3 TWA (as Zr) <i>as Zirconium compounds</i>
Calcium oxide (1305-78-8)	TWAs	5 mg/m3 TWA
Magnesium oxide (1309-48-4)	TWAs	15 mg/m3 TWA (fume, total particulate)
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)

Titanium dioxide (13463-67-7)	TWAs	15 mg/m3 TWA (total dust)
Limestone (1317-65-3)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

## 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
Physical and Chemical Properties	No data available		
General Properties			
Boiling Point	No data available	Melting 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	Explosive Properties	No data available



Oxidizing Properties:	No data available		
<b>Volatility</b>			
Vapor Pressure	No data available	Vapor Density	No data available
Evaporation Rate	No data available	VOC (Wt.)	0 %
Volatiles (Vol.)	No data available		
<b>Flammability</b>			
Flash Point	No data available	UEL	No data available
LEL	No data available	Autoignition	No data available
Flammability (solid, gas)	Not flammable.		
<b>Environmental</b>			
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

Component Name	CAS	Data
Silica, amorphous (3.045% TO 7.568%)	7631-86-9	<b>Irritation:</b> eye-rbt 25 mg/24H MLD
Titanium dioxide (0.04% TO 1.2375%)	13463-67-7	<b>Irritation:</b> skn-hmn 300 ug/3D-I MLD; <b>Tumorigen/Carcinogen:</b> ihl-rat TCLo:250 mg/m3/6H/2Y-I
Sodium hydroxide (0% TO 0.16%)	1310-73-2	<b>Irritation:</b> eye-rbt 50 ug/24H SEV; skn-rbt 500 mg/24H SEV
1-Propene, homopolymer (< 0.1089%)	9003-07-0	<b>Acute Toxicity:</b> orl-rat LD50:>8 gm/kg
Sodium silicate (0% TO 0.0675%)	1344-09-8	<b>Acute Toxicity:</b> orl-rat LD50:1960 mg/kg; skn-rbt LD50:>4640 mg/kg; <b>Irritation:</b> eye-rbt 10 mg/24H SEV; skn-rbt 500 mg/24H SEV
Non-wetting agent (4.7% TO 5.85%)	Proprietary	<b>Acute Toxicity:</b> orl-rat LD50:4250 mg/kg
Limestone (0.05% TO 0.174%)	1317-65-3	<b>Multi-dose Toxicity:</b> ihl-rat TCLo:84 mg/m3/4H/40W-I

GHS Properties	Classification
<b>Acute toxicity</b>	OSHA HCS 2012 • No data available
<b>Aspiration Hazard</b>	OSHA HCS 2012 • No data available
<b>Carcinogenicity</b>	OSHA HCS 2012 • Carcinogenicity 1A



<b>Germ Cell Mutagenicity</b>	<b>OSHA HCS 2012 • No data available</b>
<b>Skin corrosion/Irritation</b>	<b>OSHA HCS 2012 • Skin Irritation 2</b>
<b>Skin sensitization</b>	<b>OSHA HCS 2012 • No data available</b>
<b>STOT-RE</b>	<b>OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1</b>
<b>STOT-SE</b>	<b>OSHA HCS 2012 • Specific Target Organ Toxicity Single Exposure 3: Respiratory Tract Irritation</b>
<b>Toxicity for Reproduction</b>	<b>OSHA HCS 2012 • No data available</b>
<b>Respiratory sensitization</b>	<b>OSHA HCS 2012 • No data available</b>
<b>Serious eye damage/Irritation</b>	<b>OSHA HCS 2012 • Serious Eye Damage 1</b>

**Target Organs****Route(s) of entry/exposure****Medical Conditions  
Aggravated by Exposure****Potential Health Effects****Inhalation****Acute (Immediate)****Chronic (Delayed)**

- Lungs
- Inhalation, Skin, Eye, Ingestion
- Any pre-existing conditions of the lungs. Disorders of the lungs.

- May cause respiratory irritation. Exposure to dust may cause irritation.
- 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)****Chronic (Delayed)**

- Causes skin irritation. Exposure to dust may cause irritation.
- No data available.

**Eye****Acute (Immediate)****Chronic (Delayed)**

- Causes serious eye damage. Excessive concentrations of nuisance dust in the workplace may reduce visibility and may cause unpleasant deposits in eyes.
- No data available.

**Ingestion****Acute (Immediate)****Chronic (Delayed)**

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

<b>Carcinogenic Effects</b>				
	<b>CAS</b>	<b>OSHA</b>	<b>IARC</b>	<b>NTP</b>
Formaldehyde	50-00-0	Specifically Regulated Carcinogen	Group 1-Carcinogenic	Known Human Carcinogen
Titanium dioxide	13463-67-7	Not Listed	Group 2B-Possible Carcinogen	Evidence of Carcinogenicity
Quartz	14808-60-7	Not Listed	Group 1-Carcinogenic	Known Human Carcinogen
Cristobalite	14464-46-1	Not Listed	Group 1-Carcinogenic	Not Listed

**Key to abbreviations**

LD = Lethal Dose

MLD = Mild

SEV = Severe

TC = Toxic Concentration

## 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
Amorphous/fused silica	60676-86-0	Yes	Yes	No
Calcium oxide	1305-78-8	Yes	Yes	Yes
Citric acid	77-92-9	No	No	No

Cristobalite	14464-46-1	Yes	Yes	Yes
Formaldehyde	50-00-0	Yes	Yes	Yes
Iron oxide	1309-37-1	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
Sodium carbonate (2:1)	497-19-8	No	No	No
Sodium hydroxide	1310-73-2	Yes	Yes	Yes
Sodium silicate	1344-09-8	No	No	No
Sodium sulfate	7757-82-6	Yes	No	Yes
Titanium dioxide	13463-67-7	Yes	Yes	Yes

Inventory				
Component	CAS	Canada DSL	Canada NDSL	TSCA
Amorphous/fused silica	60676-86-0	Yes	No	Yes
Calcium oxide	1305-78-8	Yes	No	Yes
Citric acid	77-92-9	Yes	No	Yes
Cristobalite	14464-46-1	Yes	No	Yes
Formaldehyde	50-00-0	Yes	No	Yes
Iron oxide	1309-37-1	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
Sodium carbonate (2:1)	497-19-8	Yes	No	Yes
Sodium hydroxide	1310-73-2	Yes	No	Yes
Sodium silicate	1344-09-8	Yes	No	Yes
Sodium sulfate	7757-82-6	Yes	No	Yes
Titanium dioxide	13463-67-7	Yes	No	Yes

## Canada

### Labor

#### Canada - WHMIS - Classifications of Substances

• Formaldehyde	50-00-0	A, B1, D1A, D2A, D2B; B3, D1A, D2A, D2B, E (regulated under Formol)
• Calcium oxide	1305-78-8	E
• Iron oxide	1309-37-1	Uncontrolled product according to WHMIS classification criteria
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	E (including 0.04% in aqueous solution, 0.08%, 0.4% in aqueous solution, 2%, 2.5%, 4% in aqueous solution, 5%, 10%, 16%, 20%, 40%, 50% in

• Titanium dioxide	13463-67-7	aqueous solution, 8.7N) 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.)
• Limestone	1317-65-3	D2A
• Citric acid	77-92-9	E (including 40%)
• Sodium sulfate	7757-82-6	Uncontrolled product according to WHMIS classification criteria
• Sodium carbonate (2:1)	497-19-8	D2B, E 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.)
• Cristobalite	14464-46-1	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
• Sodium silicate	1344-09-8	D2B (SiO <sub>2</sub> :Na <sub>2</sub> O ratio >2.4:1); E (SiO <sub>2</sub> :Na <sub>2</sub> O ratio <2.4:1) 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.)
• Quartz	14808-60-7	

#### Canada - WHMIS - Ingredient Disclosure List

• Formaldehyde	50-00-0	0.1 %
• Calcium oxide	1305-78-8	1 %
• Iron oxide	1309-37-1	1 %
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	1 %
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	1 %
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	1 %
• Cristobalite	14464-46-1	1 %
• Silica, amorphous	7631-86-9	1 %
• Amorphous/fused silica	60676-86-0	1 %
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	1 %

**Environment****Canada - CEPA - Priority Substances List**

• Formaldehyde	50-00-0	Priority Substance List 2 (substance considered toxic)
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

**Canada - CEPA - Schedule I - List of Toxic Substances**

• Formaldehyde	50-00-0	
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

**United States****Labor****U.S. - OSHA - Process Safety Management - Highly Hazardous Chemicals**

• Formaldehyde	50-00-0	1000 lb TQ
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed

• Quartz	14808-60-7	Not Listed
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### U.S. - OSHA - Specifically Regulated Chemicals

• 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)
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

## Environment

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

• Formaldehyde	50-00-0	
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	100 lb final RQ; 45.4 kg final RQ
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	1000 lb final RQ; 454 kg final RQ
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed

• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	100 lb EPCRA RQ
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	500 lb TPQ
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	0.1 % de minimis concentration
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed



• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	Included in waste streams: K009, K010, K038, K040, K156, K157
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	waste number U122
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	waste number U122
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed

• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

## United States - California

### Environment

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

• Formaldehyde	50-00-0	carcinogen, initial date 1/1/88 (gas)
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	carcinogen, initial date 9/2/11 (airborne, unbound particles of respirable size)
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	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)

• Formaldehyde	50-00-0	40 µg/day NSRL (gas)
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

## United States - Pennsylvania

### Labor

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

• Formaldehyde	50-00-0	
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	

• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	(solution)
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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

• Formaldehyde	50-00-0	
• Calcium oxide	1305-78-8	Not Listed
• Iron oxide	1309-37-1	Not Listed
• Iron oxide as Iron compounds		Not Listed
• Sodium hydroxide	1310-73-2	Not Listed
• Titanium dioxide	13463-67-7	Not Listed
• Limestone	1317-65-3	Not Listed
• Citric acid	77-92-9	Not Listed
• Sodium sulfate	7757-82-6	Not Listed
• Sodium carbonate (2:1)	497-19-8	Not Listed
• Cristobalite	14464-46-1	Not Listed
• Silica, amorphous	7631-86-9	Not Listed
• Amorphous/fused silica	60676-86-0	Not Listed
• Sodium silicate	1344-09-8	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

### Last Revision Date

- 28/February/2014

### Preparation Date

- 01/June/2009

### Disclaimer/Statement of Liability

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### Key to abbreviations

NDA = No data available