

Safety Data Sheet



Section 1: Identification

Product identifier

Product Name • Ladle Cast AL 100
Product Code • 139800

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 - lungs 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/protective clothing/eye protection/face protection.

Response • 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

Label elements

WHMIS



WHMIS

- Other Toxic Effects - D2A

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
Cement, alumina, chemicals	CAS:65997-16-2	7.2% TO 20%	NDA	OSHA HCS 2012: Not Classified	NDA
Aluminum silicate, andalusite	CAS:12183-80-1	13.5% TO 18.9%	NDA	OSHA HCS 2012: Not Classified	NDA
Mullite	CAS:1302-93-8	16.45% TO 17.9%	NDA	OSHA HCS 2012: STOT RE 2 (Lungs)	NDA
Microspheres	Proprietary	15.3% TO 17.9%	NDA	OSHA HCS 2012: STOT RE 2 (Lungs)	NDA
Aluminum oxide	CAS:1344-28-1	4.925% TO 16.005%	NDA	OSHA HCS 2012: Not Classified	NDA
Cristobalite	CAS:14464-46-1	3.45% TO 6.259%	NDA	OSHA HCS 2012: Carc. 1A	NDA
Non-wetting agent	Proprietary	4.7% TO 5.85%	Ingestion/Oral-Rat LD50 • 4417 mg/kg	OSHA HCS 2012: Not Classified	NDA

Silica, amorphous	CAS:7631-86-9	2.345% TO 5.168%	NDA	OSHA HCS 2012: Not Classified	NDA
Amorphous silica fume	CAS:69012-64-2	> 3.6%		OSHA HCS 2012: STOT RE 1 (Lungs)	NDA
Quartz	CAS:14808-60-7	0.4% TO 2.043%	NDA	OSHA HCS 2012: Carc. 1A; STOT RE 1 (Lungs)	NDA
Titanium dioxide	CAS:13463-67-7	0.08% TO 0.455%	NDA	OSHA HCS 2012: Carc. 2	NDA
Limestone	CAS:1317-65-3	0.05% TO 0.174%	NDA	OSHA HCS 2012: STOT RE 2 (Lungs, inhalation)	NDA
pH modifier	Proprietary	0% TO 0.1089%	Ingestion/Oral-Rat LD50 • 4220 mg/kg	OSHA HCS 2012: Acute Tox 4 (orl), Eye Irrit 2	NDA
Zirconium	CAS:7440-67-7	0% TO 0.0825%	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
Iron oxide	CAS:1309-37-1	0% TO 0.0025%	NDA	OSHA HCS 2012: Exposure limit(s)	NDA
Formaldehyde	CAS:50-00-0	0% TO 0.000025%	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. 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 the patient. Consideration should be given to the possibility that overexposure to material 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. Wash thoroughly after handling. Do not use in areas without adequate ventilation. 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.

Conditions for safe storage, including any incompatibilities

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

Section 8 - Exposure Controls/Personal Protection

Control parameters

Exposure Limits/Guidelines						
	Result	ACGIH	Canada Ontario	Canada Quebec	Mexico	NIOSH
Formaldehyde	Ceilings	0.3 ppm Ceiling	1.5 ppm Ceiling	2 ppm Ceiling; 3 mg/m ³ Ceiling	2 ppm Ceiling; 3 mg/m ³ Ceiling	0.1 ppm Ceiling (15 min)

(50-00-0)	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
Iron oxide (1309-37-1)	STELs	Not established	Not established	Not established	10 mg/m ³ STEL [LMPE-CT] (as Fe)	Not established
	TWAs	5 mg/m ³ TWA (respirable fraction)	5 mg/m ³ TWA (respirable)	5 mg/m ³ TWAEV (dust and fume, as Fe); 10 mg/m ³ TWAEV (containing no Asbestos and <1% Crystalline silica, regulated under Rouge, total dust)	5 mg/m ³ TWA LMPE- PPT	5 mg/m ³ TWA (dust and fume, as Fe)
Zirconium	STELs	10 mg/m ³ STEL	10 mg/m ³ STEL	10 mg/m ³ STEV	10 mg/m ³ STEL [LMPE-CT] (as Zr) <i>as Zirconium compounds</i>	10 mg/m ³ STEL
	TWAs	5 mg/m ³ TWA	5 mg/m ³ TWA	5 mg/m ³ TWAEV	5 mg/m ³ TWA LMPE- PPT (as Zr) <i>as Zirconium compounds</i>	5 mg/m ³ TWA
Limestone (1317-65-3)	STELs	Not established	Not established	Not established	20 mg/m ³ STEL [LMPE-CT]	Not established
	TWAs	Not established	Not established	10 mg/m ³ TWAEV (Limestone, containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m ³ TWA LMPE -PPT	10 mg/m ³ TWA (total dust); 5 mg/m ³ TWA (respirable dust)
Titanium dioxide (13463-67-7)	STELs	Not established	Not established	Not established	20 mg/m ³ STEL [LMPE-CT] (as Ti)	Not established
	TWAs	10 mg/m ³ TWA	10 mg/m ³ TWA	10 mg/m ³ TWAEV (containing no Asbestos and <1% Crystalline silica, total dust)	10 mg/m ³ TWA LMPE -PPT (as Ti)	Not established
Quartz (14808-60-7)	TWAs	0.025 mg/m ³ TWA (respirable fraction)	0.10 mg/m ³ TWA (designated substances regulation, respirable, listed under Silica, crystalline)	0.1 mg/m ³ TWAEV (respirable dust)	0.1 mg/m ³ TWA LMPE-PPT (respirable fraction)	0.05 mg/m ³ TWA (respirable dust)
Silica, amorphous (7631-86-9)	TWAs	Not established	Not established	Not established	Not established	6 mg/m ³ TWA
Cristobalite (14464-46-1)	TWAs	0.025 mg/m ³ TWA (respirable fraction)	0.05 mg/m ³ TWA (designated substances regulation, respirable, listed under Silica, crystalline)	0.05 mg/m ³ TWAEV (respirable dust)	0.05 mg/m ³ TWA LMPE-PPT (respirable fraction)	0.05 mg/m ³ TWA (respirable dust)
Amorphous silica fume	TWAs	Not established	2 mg/m ³ TWA (respirable, listed	2 mg/m ³ TWAEV (containing no Asbestos and <1%	2 mg/m ³ TWA LMPE- PPT; 10 mg/m ³ TWA LMPE-PPT (inhalable particulate); 3 mg/m ³	Not established

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

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
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)
Zirconium	TWAs	5 mg/m3 TWA (as Zr) <i>as Zirconium compounds</i>
Limestone (1317-65-3)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Titanium dioxide (13463-67-7)	TWAs	15 mg/m3 TWA (total dust)
Aluminum oxide (1344-28-1)	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
Cement, alumina, chemicals	TWAs	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction) <i>as Particulates not otherwise classified (PNOC)</i>

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	Data lacking
General Properties			
Boiling Point	Data lacking	Melting Point/Freezing Point	Data lacking
Decomposition Temperature	Data lacking	pH	Data lacking
Specific Gravity/Relative Density	2.2 to 2.9 Water=1	Water Solubility	Negligible < 0.1 %
Viscosity	Data lacking	Explosive Properties	Data lacking
Oxidizing Properties:	Data lacking		
Volatility			
Vapor Pressure	Data lacking	Vapor Density	Data lacking
Evaporation Rate	Data lacking	VOC (Wt.)	0 %
Flammability			
Flash Point	Data lacking	UEL	Data lacking
LEL	Data lacking	Autoignition	Data lacking
Flammability (solid, gas)	Not flammable.		
Environmental			
Octanol/Water Partition coefficient	Data lacking		

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 (2.345% TO 5.168%)	7631-86-9	Irritation: Eye-Rabbit • 25 mg 24 Hour(s) • Mild irritation
Titanium dioxide (0.08% TO 0.455%)	13463-67-7	Irritation: Skin-Human • 300 µg 3 Day(s)-Intermittent • Mild irritation; Tumorigen / Carcinogen: Inhalation-Rat TClO • 250 mg/m ³ 6 Hour(s) 2 Year(s)-Intermittent; <i>Tumorigenic: Carcinogenic by RTECS criteria; Lungs, Thorax, or Respiration: Tumors</i>
Sodium silicate (0% TO 0.0675%)	1344-09-8	Acute Toxicity: Ingestion/Oral-Rat LD50 • 1960 mg/kg; Irritation: Eye-Rabbit • 10 mg 24 Hour(s) • Severe irritation; Skin-Rabbit • 500 mg 24 Hour(s) • Severe irritation
Non-wetting agent (4.7% TO 5.85%)	Proprietary	Acute Toxicity: Ingestion/Oral-Rat LD50 • 4250 mg/kg; Behavioral: Somnolence (general depressed activity); Behavioral: Ataxia; Lungs, Thorax, or Respiration: Respiratory depression
Limestone (0.05% TO 0.174%)	1317-65-3	Multi-dose Toxicity: Inhalation-Rat TClO • 84 mg/m ³ 4 Hour(s) 40 Week(s)-Intermittent; <i>Lungs, Thorax, or Respiration: Fibrosis (interstitial); Liver: Other changes; Kidney, Ureter, and Bladder: Other changes</i>
pH modifier (0% TO 0.1089%)	Proprietary	Acute Toxicity: Ingestion/Oral-Rat LD50 • 4220 mg/kg; Irritation: Eye-Rabbit • 100 mg 30 Second(s) • Mild irritation; Skin-Human • 30 mg 3 Day(s)-Intermittent • Mild irritation

GHS Properties	Classification
Acute toxicity	OSHA HCS 2012 • Classification criteria not met
Skin corrosion/Irritation	OSHA HCS 2012 • Classification criteria not met
Serious eye damage/Irritation	OSHA HCS 2012 • Classification criteria not met
Skin sensitization	OSHA HCS 2012 • Classification criteria not met
Respiratory sensitization	OSHA HCS 2012 • Classification criteria not met
Aspiration Hazard	OSHA HCS 2012 • Classification criteria not met
Carcinogenicity	OSHA HCS 2012 • Carcinogenicity 1A
Germ Cell Mutagenicity	OSHA HCS 2012 • Classification criteria not met
Toxicity for Reproduction	OSHA HCS 2012 • Classification criteria not met
STOT-SE	OSHA HCS 2012 • Classification criteria not met
STOT-RE	OSHA HCS 2012 • Specific Target Organ Toxicity Repeated Exposure 1

Target Organs

- Lungs

Route(s) of entry/exposure

- Inhalation, Skin, Eye, Ingestion

**Medical Conditions
Aggravated by Exposure
Potential Health Effects
Inhalation**

Acute (Immediate)

- Any pre-existing conditions of the lungs. Disorders of the lungs.

Chronic (Delayed)

- Nuisance dust may affect the lungs but reactions are typically reversible.
- 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	IARC	NTP
Titanium dioxide	13463-67-7	Group 2B-Possible Carcinogen	Evidence of Carcinogenicity
Quartz	14808-60-7	Group 1-Carcinogenic	Known Human Carcinogen
Cristobalite	14464-46-1	Group 1-Carcinogenic	Not Listed

Key to abbreviations

MLD = Mild

SEV = Severe

TC = Toxic Concentration

TD = Toxic Dose

LD = Lethal 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 • Chronic

State Right To Know				
Component	CAS	MA	NJ	PA
Aluminum oxide	1344-28-1	Yes	Yes	Yes
Cristobalite	14464-46-1	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
Sodium carbonate (2:1)	497-19-8	No	No	No
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
Aluminum oxide	1344-28-1	Yes	No	Yes
Cristobalite	14464-46-1	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

Sodium carbonate (2:1)	497-19-8	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) 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.)
• Titanium dioxide	13463-67-7	Uncontrolled product according to WHMIS classification criteria Not Listed
• Aluminum oxide	1344-28-1	D2A
• Aluminum oxide as Aluminum insoluble compounds	1317-65-3	Uncontrolled product according to WHMIS classification criteria
• Limestone	7757-82-6	D2B, E
• Sodium sulfate	497-19-8	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.)
• Sodium carbonate (2:1)	14464-46-1	Uncontrolled product according to WHMIS classification criteria
• Cristobalite	7631-86-9	D2B (SiO ₂ :Na ₂ O ratio >2.4:1); E (SiO ₂ :Na ₂ O ratio <2.4:1)
• Silica, amorphous	1344-09-8	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.)
• Sodium silicate	14808-60-7	
• Quartz		

Canada - WHMIS - Ingredient Disclosure List

• Formaldehyde	50-00-0	0.1 %
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	1 %
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	Not Listed

• 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 %
• 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)
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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	
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• Sodium silicate	1344-09-8	Not Listed
• Quartz	14808-60-7	Not Listed

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
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		1910.1048); 0.75 ppm TWA (See 29 CFR 1910.1048)
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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	
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	1.0 % de minimis concentration (fibrous forms)
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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)
• Titanium dioxide	13463-67-7	carcinogen, initial date 9/2/11 (airborne, unbound particles of respirable size)
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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)
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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	
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	

• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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	
• Titanium dioxide	13463-67-7	Not Listed
• Aluminum oxide	1344-28-1	Not Listed
• Aluminum oxide as Aluminum insoluble compounds		Not Listed
• Limestone	1317-65-3	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
• 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

Revision Date	• 26/April/2018
Last Revision Date	• 28/February/2014
Preparation Date	• 01/June/2009
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Key to abbreviations

NDA = No data available