

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Clarion Sandstone (Shale)

Synonyms: Mud rock, Rock shale

1.2. Intended Use of the Product

Shale is used as a component of cement manufacture. It may also be used as a building material or an admixture for clay or other building products.

1.3. Name, Address, and Telephone of the Responsible Party

Company

Holcim US

8700 West Bryn Mawr Avenue, Suite 300

Chicago, IL 60631

Information: (888) 646-5246 (9am to 5pm CST)

Email: us-sds-inquiries@holcim.com

Website: holcim.us

1.4. Emergency Telephone Number

Emergency Number : ChemTel LLC
1-800-255-3924 (US and Canada)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Skin Corr. 1A H314

Eye Dam. 1 H318

Carc. 1A H350

STOT SE 3 H335

STOT RE 1 H372

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US/CA Labeling

Hazard Pictograms (GHS-US/CA) :



Signal Word (GHS-US/CA) :

Danger

Hazard Statements (GHS-US/CA) :

H314 - Causes severe skin burns and eye damage.

H318 - Causes serious eye damage.

H335 - May cause respiratory irritation.

H350 - May cause cancer (Inhalation).

H372 - Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Precautionary Statements (GHS-US/CA) : P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 - Do not breathe dust.

P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.

P270 - Do not eat, drink or smoke when using this product.

P271 - Use only outdoors or in a well-ventilated area.

P280 - Wear protective gloves, protective clothing, and eye protection.

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P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
 P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
 P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing.
 P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P308+P313 - If exposed or concerned: Get medical advice/attention.
 P310 - Immediately call a POISON CENTER or doctor.
 P314 - Get medical advice/attention if you feel unwell.
 P321 - Specific treatment (see section 4 on this SDS).
 P363 - Wash contaminated clothing before reuse.
 P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
 P405 - Store locked up.
 P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

2.4. Unknown Acute Toxicity (GHS-US/CA)

No additional information available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	% *	GHS Ingredient Classification
Quartz	Quartz (SiO ₂) / Silica, crystalline, quartz / Crystalline silica, quartz / .alpha.-Quartz / Silica, crystalline, .alpha.-quartz / Crystalline silica in the form of quartz / Quartz, silica / Quartz (respirable fraction) / Silica dust / Silica, .alpha.-quartz / Silicon dioxide / Silica, quartz / Silica, crystalline / Silica dust, crystalline	(CAS-No.) 14808-60-7	≤ 60	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372
Silica, amorphous	Amorphous silica / Silica / Silica, amorphous, fumed / Silica, colloidal / Silicon dioxide / Silicon dioxide, amorphous / Silicon(IV) oxide / Un-crystalline silica / Pigment White 27 / Silicon dioxide (amorphous) / Silicon dioxide amorphous / Silicon(IV)oxide / Silica amorphous / Fumed silica	(CAS-No.) 7631-86-9	≤ 60	Not classified
Aluminum oxide (Al ₂ O ₃)	Aluminum oxide / .alpha.-Alumina / Alumina / Aluminium oxide / Aluminium oxide (Al ₂ O ₃) / .alpha.-Aluminum oxide / Alundum / Dialuminium trioxide / Dialuminum trioxide	(CAS-No.) 1344-28-1	10 – 15	Not classified
Potassium oxide (K ₂ O)	Potassium oxide / Dipotassium oxide / Potassium monoxide	(CAS-No.) 12136-45-7	2 – 6	PHNOC 1 Skin Corr. 1A, H314 Eye Dam. 1, H318
Magnesium oxide (MgO)	Calcined magnesite / Magnesium oxide / Magnesia	(CAS-No.) 1309-48-4	2 – 6	Not classified
Calcium oxide	Lime / Quicklime / Quicklime (CaO) / Calcium oxide (CaO) / Lime (calcium oxide)	(CAS-No.) 1305-78-8	2 – 6	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402 Aquatic Chronic 3, H412
Iron oxide (FeO)	Ferrous oxide / Iron(II) oxide / C.I. 77489 / Ferrous monoxide / Iron oxide	(CAS-No.) 1345-25-1	2 – 6	Not classified

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Sodium oxide (Na ₂ O)	Disodium oxide / Sodium oxide / Sodium monoxide	(CAS-No.) 1313-59-3	≤ 1	PHNOC 1 Skin Corr. 1B, H314 Eye Dam. 1, H318
Phosphorus oxide (P ₂ O ₅)	Phosphorus pentoxide / Diphosphorus pentaoxide / Diphosphorus pentoxide / Phosphoric anhydride / Phosphorus pentaoxide / Phosphorus(V) oxide / Phosphoric acid anhydride / Phosphoric pentoxide / Phosphorus pentoxide (P ₂ O ₅)	(CAS-No.) 1314-56-3	≤ 1	Skin Corr. 1A, H314 Eye Dam. 1, H318

Full text of H-statements: see section 16

*Percentages are listed in weight by weight percentage (w/w%) for liquid and solid ingredients. Gas ingredients are listed in volume by volume percentage (v/v%).

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

Inhalation: Remove to fresh air and keep at rest in a position comfortable for breathing. Encourage exposed person to cough, spit out, and blow nose to remove dust. Immediately call a poison center or doctor/physician.

Skin Contact: Immediately remove contaminated clothing. Brush off loose particles from skin. Immediately flush skin with plenty of water for at least 30 minutes. Get immediate medical advice/attention.

Eye Contact: Immediately rinse with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

General: May cause respiratory irritation. Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation). May cause cancer by inhalation. Causes severe skin burns and eye damage.

Inhalation: Irritation of the respiratory tract and the other mucous membranes. May be corrosive to the respiratory tract. Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis. Causes severe irritation which will progress to chemical burns.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: Long term exposure to respirable crystalline silica results in a significant risk of developing silicosis and other non-malignant respiratory disease, lung cancer, kidney effects, and immune system effects.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use firefighting measures appropriate for the surrounding fire.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Corrosive vapors. Calcium oxide. Carbon oxides (CO, CO₂). Oxides of aluminum. Oxides of iron. Oxides of magnesium. Potassium oxides. Silicon oxides. Sulfur oxides.

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5.4. Reference to Other Sections

Refer to Section 9 for flammability properties.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not handle until all safety precautions have been read and understood. Do not breathe dust. Do not get in eyes, on skin, or on clothing.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming, shoveling or sweeping. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: Cutting, crushing, sanding or grinding of crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below. Heavy material - proper lifting methods or equipment. May release corrosive vapors.

Precautions for Safe Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Handle empty containers with care because they may still present a hazard.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area. Store in original container or corrosive resistant and/or lined container.

Incompatible Materials: Strong acids. Strong oxidizers.

7.3. Specific End Use(s)

Shale is used as a component of cement manufacture. It may also be used as a building material or an admixture for clay or other building products.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), OSHA (PEL), or Canadian provincial governments.

Calcium oxide (1305-78-8)		
USA ACGIH	ACGIH OEL TWA	2 mg/m ³
USA OSHA	OSHA PEL TWA	5 mg/m ³
USA NIOSH	NIOSH REL TWA	2 mg/m ³
USA IDLH	IDLH	25 mg/m ³

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Alberta	OEL TWA	2 mg/m ³
British Columbia	OEL TWA	2 mg/m ³
Manitoba	OEL TWA	2 mg/m ³
New Brunswick	OEL TWA	2 mg/m ³
Newfoundland & Labrador	OEL TWA	2 mg/m ³
Nova Scotia	OEL TWA	2 mg/m ³
Nunavut	OEL STEL	4 mg/m ³
Nunavut	OEL TWA	2 mg/m ³
Northwest Territories	OEL STEL	4 mg/m ³
Northwest Territories	OEL TWA	2 mg/m ³
Ontario	OEL TWA	2 mg/m ³
Prince Edward Island	OEL TWA	2 mg/m ³
Québec	VEMP OEL TWA	2 mg/m ³
Saskatchewan	OEL STEL	4 mg/m ³
Saskatchewan	OEL TWA	2 mg/m ³
Yukon	OEL STEL	4 mg/m ³
Yukon	OEL TWA	2 mg/m ³
Magnesium oxide (MgO) (1309-48-4)		
USA ACGIH	ACGIH OEL TWA	10 mg/m ³ (inhalable particulate matter)
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL TWA	15 mg/m ³ (fume, total particulate)
USA IDLH	IDLH	750 mg/m ³ (fume)
Alberta	OEL TWA	10 mg/m ³ (fume)
British Columbia	OEL STEL	10 mg/m ³ (respirable dust and fume)
British Columbia	OEL TWA	10 mg/m ³ (fume, inhalable) 3 mg/m ³ (respirable dust and fume)
Manitoba	OEL TWA	10 mg/m ³ (inhalable particulate matter)
New Brunswick	OEL TWA	10 mg/m ³ (fume)
Newfoundland & Labrador	OEL TWA	10 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA	10 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL	20 mg/m ³ (inhalable fraction)
Nunavut	OEL TWA	10 mg/m ³ (inhalable fraction)
Northwest Territories	OEL STEL	20 mg/m ³ (inhalable fraction)
Northwest Territories	OEL TWA	10 mg/m ³ (inhalable fraction)
Ontario	OEL TWA	10 mg/m ³ (inhalable particulate matter)
Prince Edward Island	OEL TWA	10 mg/m ³ (inhalable particulate matter)
Québec	VEMP (OEL TWA)	10 mg/m ³ (inhalable dust)
Saskatchewan	OEL STEL	20 mg/m ³ (inhalable fraction)
Saskatchewan	OEL TWA	10 mg/m ³ (inhalable fraction)
Yukon	OEL STEL	10 mg/m ³ (fume)
Yukon	OEL TWA	10 mg/m ³ (fume)
Quartz (14808-60-7)		
USA ACGIH	ACGIH OEL TWA	0.025 mg/m ³ (respirable particulate matter)
USA ACGIH	ACGIH chemical category	A2 - Suspected Human Carcinogen
USA OSHA	OSHA PEL TWA	50 µg/m ³ (Respirable crystalline silica)
USA OSHA	OSHA PEL TWA	(250)/(%SiO ₂ +5) mppcf TWA (respirable fraction) (10)/(%SiO ₂ +2) mg/m ³ TWA (respirable fraction) (For any operations or sectors for which the respirable crystalline silica standard, 1910.1053, is stayed or otherwise not in effect, See 20 CFR 1910.1000 TABLE Z-3)
USA NIOSH	NIOSH REL TWA	0.05 mg/m ³ (respirable dust)
USA IDLH	IDLH	50 mg/m ³ (respirable dust)

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Alberta	OEL TWA	0.025 mg/m ³ (respirable particulate)
British Columbia	OEL TWA	0.025 mg/m ³ (respirable)
Manitoba	OEL TWA	0.025 mg/m ³ (respirable particulate matter)
New Brunswick	OEL TWA	0.1 mg/m ³ (respirable fraction)
Newfoundland & Labrador	OEL TWA	0.025 mg/m ³ (respirable particulate matter)
Nova Scotia	OEL TWA	0.025 mg/m ³ (respirable particulate matter)
Nunavut	OEL TWA	0.05 mg/m ³ (respirable fraction (Silica - crystalline))
Northwest Territories	OEL TWA	0.05 mg/m ³ (respirable fraction (Silica - crystalline))
Ontario	OEL TWA	0.1 mg/m ³ (designated substances regulation-respirable fraction (Silica, crystalline))
Prince Edward Island	OEL TWA	0.025 mg/m ³ (respirable particulate matter)
Québec	VEMP OEL TWA	0.1 mg/m ³ (respirable dust)
Saskatchewan	OEL TWA	0.05 mg/m ³ (Trydimite removed-respirable fraction (Silica - crystalline (Trydimite removed)))
Yukon	OEL TWA	300 particle/mL (Silica - Quartz, crystalline)
Silica, amorphous (7631-86-9)		
USA OSHA	OSHA PEL TWA	6 mg/m ³
USA OSHA	OSHA PEL TWA	20 mppcf (80mg/m ³ /%SiO ₂)
USA NIOSH	NIOSH REL TWA	6 mg/m ³
USA IDLH	IDLH	3000 mg/m ³
Yukon	OEL TWA	300 particle/mL (as measured by Konimeter instrumentation (Silica)) 20 mppcf (as measured by Impinger instrumentation (Silica)) 2 mg/m ³ (respirable mass (Silica))
Aluminum oxide (Al₂O₃) (1344-28-1)		
USA ACGIH	ACGIH OEL TWA	10 mg/m ³
USA OSHA	OSHA PEL TWA	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Alberta	OEL TWA	10 mg/m ³
New Brunswick	OEL TWA	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Nunavut	OEL STEL	20 mg/m ³
Nunavut	OEL TWA	10 mg/m ³
Northwest Territories	OEL STEL	20 mg/m ³
Northwest Territories	OEL TWA	10 mg/m ³
Québec	VEMP OEL TWA	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust)
Saskatchewan	OEL STEL	20 mg/m ³
Saskatchewan	OEL TWA	10 mg/m ³
Yukon	OEL STEL	20 mg/m ³ (Al ₂ O ₃)
Yukon	OEL TWA	30 mppcf (Al ₂ O ₃) 10 mg/m ³ (Al ₂ O ₃)

8.2. Exposure Controls

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Corrosion-proof clothing.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical goggles or safety glasses.

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Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Black, gray or white particles
Odor	: Odorless
Odor Threshold	: No data available
pH	: 6 – 8
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Lower Flammable Limit	: No data available
Upper Flammable Limit	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: No data available
Specific Gravity	: 1.3 - 1.4 (water = 1)
Solubility	: Water: <1 % (negligible)
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.

10.2. Chemical Stability:

Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

10.4. Conditions to Avoid:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5. Incompatible Materials:

Strong acids. Strong oxidizers.

10.6. Hazardous Decomposition Products:

Adding water produces (caustic) calcium, potassium and sodium hydroxide. Quartz (silica) will dissolve in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride. Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870 °C (1598 °F), it can change to a form of crystalline silica known as tridymite, and if crystalline silica (quartz) is heated to more than 1470 °C (2678 °F), it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as tridymite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz). Thermal decomposition may produce: Corrosive vapors. Calcium oxides. Carbon oxides (CO, CO₂). Oxides of magnesium. Potassium oxides. Silicon oxides. Sulfur oxides.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects - Product

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

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Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: No additional information available

Skin Corrosion/Irritation: Causes severe skin burns.

Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Specific Target Organ Toxicity (Repeated Exposure): Causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (Inhalation).

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. Silicosis increases the risk of tuberculosis. Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica. May be corrosive to the respiratory tract.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis. Causes severe irritation which will progress to chemical burns.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: Long term exposure to respirable crystalline silica results in a significant risk of developing silicosis and other non-malignant respiratory disease, lung cancer, kidney effects, and immune system effects.

11.2. Information on Toxicological Effects - Ingredient(s)

LD50 and LC50 Data:

Calcium oxide (1305-78-8)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rabbit	> 2500 mg/kg
LC50 Inhalation Rat	> 6.04 mg/l/4h
Magnesium oxide (MgO) (1309-48-4)	
LD50 Oral Rat	3870 mg/kg
Quartz (14808-60-7)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg
Silica, amorphous (7631-86-9)	
LD50 Oral Rat	7900 mg/kg
LD50 Dermal Rabbit	> 2000 mg/kg (No deaths)
Aluminum oxide (Al₂O₃) (1344-28-1)	
LD50 Oral Rat	> 15900 mg/kg
Iron oxide (FeO) (1345-25-1)	
LD50 Oral Rat	> 15 g/kg
Phosphorus oxide (P₂O₅) (1314-56-3)	
LC50 Inhalation Rat	1217 mg/m ³ (Exposure time: 1 h)
Quartz (14808-60-7)	
IARC Group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.
Silica, amorphous (7631-86-9)	
IARC Group	3

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SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

No additional information available

Calcium oxide (1305-78-8)	
LC50 Fish	50.6 mg/l
Silica, amorphous (7631-86-9)	
LC50 Fish	5000 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static])
EC50 Crustacea	7600 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia)
Aluminum oxide (Al₂O₃) (1344-28-1)	
LC50 Fish	> 100 mg/l
EC50 Crustacea	> 100 mg/l
ErC50 Algae	> 100 mg/l
NOEC (Acute)	> 50 mg/l

12.2. Persistence and Degradability

No additional information available

12.3. Bioaccumulative Potential

Clarion Sandstone (Shale)	
Bioaccumulative Potential	Not established.
Calcium oxide (1305-78-8)	
BCF Fish	No bioaccumulation.
Silica, amorphous (7631-86-9)	
BCF Fish	No bioaccumulation expected.

12.4. Mobility in Soil

No additional information available

12.5. Other Adverse Effects

Other Information: Avoid unnecessary release into the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT

Proper Shipping Name : CORROSIVE SOLIDS, N.O.S. (Potassium monoxide, Sodium monoxide)
Hazard Class : 8
Identification Number : UN1759
Label Codes : 8
Packing Group : II
ERG Number : 154



14.2. In Accordance with IMDG

Proper Shipping Name : CORROSIVE SOLID, N.O.S. (Potassium monoxide, Sodium monoxide)
Hazard Class : 8
Identification Number : UN1759
Label Codes : 8
Packing Group : II
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-B



14.3. In Accordance with IATA

Proper Shipping Name : CORROSIVE SOLID, N.O.S. (Potassium monoxide, Sodium monoxide)

Clarion Sandstone (Shale)

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According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

Hazard Class : 8
Identification Number : UN1759
Label Codes : 8
Packing Group : II
ERG Code (IATA) : 8L



14.4. In Accordance with TDG

Proper Shipping Name : CORROSIVE SOLID, N.O.S. (Potassium monoxide, Sodium monoxide)
Hazard Class : 8
Identification Number : UN1759
Label Codes : 8
Packing Group : II



SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Clarion Sandstone (Shale)	
SARA Section 311/312 Hazard Classes	Health hazard - Serious eye damage or eye irritation Health hazard - Specific target organ toxicity (single or repeated exposure) Health hazard - Skin corrosion or Irritation Health hazard - Carcinogenicity
Calcium oxide (1305-78-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Magnesium oxide (MgO) (1309-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Quartz (14808-60-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Silica, amorphous (7631-86-9)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Aluminum oxide (Al₂O₃) (1344-28-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Subject to reporting requirements of United States SARA Section 313	
SARA Section 313 - Emission Reporting	1 % (fibrous forms)
Iron oxide (FeO) (1345-25-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Potassium oxide (K₂O) (12136-45-7)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Sodium oxide (Na₂O) (1313-59-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active	
Phosphorus oxide (P₂O₅) (1314-56-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

15.2. US State Regulations

California Proposition 65



WARNING: This product can expose you to Quartz, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Chemical Name (CAS No.)	Carcinogenicity	Developmental Toxicity	Female Reproductive Toxicity	Male Reproductive Toxicity
Quartz (14808-60-7)	X			

Calcium oxide (1305-78-8)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List
Magnesium oxide (MgO) (1309-48-4)

Clarion Sandstone (Shale)

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations And According To The Hazardous Products Regulation (February 11, 2015).

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Quartz (14808-60-7)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Silica, amorphous (7631-86-9)

U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List

Aluminum oxide (Al₂O₃) (1344-28-1)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

Potassium oxide (K₂O) (12136-45-7)

U.S. - New Jersey - Right to Know Hazardous Substance List

Phosphorus oxide (P₂O₅) (1314-56-3)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List
U.S. - Massachusetts - Right To Know List
U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List

15.3. Canadian Regulations

Calcium oxide (1305-78-8)

Listed on the Canadian DSL (Domestic Substances List)

Magnesium oxide (MgO) (1309-48-4)

Listed on the Canadian DSL (Domestic Substances List)

Quartz (14808-60-7)

Listed on the Canadian DSL (Domestic Substances List)

Silica, amorphous (7631-86-9)

Listed on the Canadian DSL (Domestic Substances List)

Aluminum oxide (Al₂O₃) (1344-28-1)

Listed on the Canadian DSL (Domestic Substances List)

Iron oxide (FeO) (1345-25-1)

Listed on the Canadian DSL (Domestic Substances List)

Potassium oxide (K₂O) (12136-45-7)

Listed on the Canadian DSL (Domestic Substances List)

Sodium oxide (Na₂O) (1313-59-3)

Listed on the Canadian DSL (Domestic Substances List)

Phosphorus oxide (P₂O₅) (1314-56-3)

Listed on the Canadian DSL (Domestic Substances List)

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Date of Preparation or Latest Revision : 03/12/2022

Revision

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200 and Canada's Hazardous Products Regulations (HPR) SOR/2015-17.

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3

Clarion Sandstone (Shale)

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Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
PHNOC 1	Physical hazard not otherwise classified, category 1
Skin Corr. 1A	Skin corrosion/irritation Category 1A
Skin Corr. 1B	Skin corrosion/irritation Category 1B
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

Indication of Changes

Section	Change	Date Changed	Version
1	Modified responsible party information, logo & emergency telephone number	03/12/2022	1.1

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