

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: TerraFlow™

Synonyms: Lafarge TerraFlow™

1.2. Intended Use of the Product

TerraFlow™ is used as a mine backfill binder. TerraFlow is distributed as bulk shipment.

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

Company

LafargeHolcim in the US

8700 West Bryn Mawr Avenue, Suite 300

Chicago, IL 60631

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

Email: us-sds-inquiries@lafargeholcim.com

Website: www.MaterialsThatPerform.com

The LafargeHolcim companies in the US include Holcim (US)

Inc., Aggregate Industries Management Inc., and their subsidiaries and affiliates.

1.4. Emergency Telephone Number

Emergency Number : CHEMTREC 1-800-424-9300 (24 hours)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US/CA Classification

Skin Irrit. 2	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 1A	H350
STOT SE 3	H335
STOT RE 1	H372
Aquatic Acute 3	H402
Aquatic Chronic 3	H412

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)

: H315 - Causes skin irritation.
 H317 - May cause an allergic skin reaction.
 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).
 H402 - Harmful to aquatic life.
 H412 - Harmful to aquatic life with long lasting effects.

- 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 vapors, mist, or spray.
 - 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.
 - P272 - Contaminated work clothing should not be allowed out of the workplace.
 - P273 - Avoid release to the environment.
 - P280 - Wear protective gloves, protective clothing, and eye protection.
 - P302+P352 - IF ON SKIN: Wash with plenty of 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).
 - P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
 - P362+P364 - Take off contaminated clothing and wash it 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 data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance

Not applicable

3.2. Mixture

Name	Synonyms	Product Identifier	% *	GHS Ingredient Classification
Cement, portland, chemicals	Portland cement / Silicate, portland cement / Cement (Portland) / Cement kiln dust / Cement Portland	(CAS-No.) 65997-15-1	< 90	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335
Limestone	Chalk / Limestone (A noncombustible solid characteristic of sedimentary rock. It consists primarily of calcium carbonate.) / Natural calcium carbonate / Marble / Calcium carbonate / Limestone (sedimentary rock) / Calcite / Limestone ground / Acetate, 4-methyl-2-propyl-2H-tetrahydropyran-4-yl / Ground limestone	(CAS-No.) 1317-65-3	5 – 40	Not classified
Calcium oxide	Lime / Quicklime / Quicklime (CaO) / Calcium oxide (CaO) / Lime (calcium oxide)	(CAS-No.) 1305-78-8	< 30	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402 Aquatic Chronic 3, H412
Gypsum (Ca(SO4).2H2O)	Gypsum	(CAS-No.) 13397-24-5	1 – 10	Not classified
Quartz	Quartz (SiO2) / Silica, crystalline, quartz / Crystalline silica, quartz / .alpha.-Quartz / Silica, crystalline,	(CAS-No.) 14808-60-7	< 10	Carc. 1A, H350 STOT SE 3, H335

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	.alpha.-quartz / Crystalline silica in the form of quartz / Quartz, silica / Quartz (respirable fraction) / Silica dust / Silica, crystalline-.alpha.quartz / Silica, quartz / Silica, .alpha.-quartz / Silicon dioxide / Silica, crystalline / Quartz (crystalline silica) / Silica dust, crystalline / QUARTZ POWDER / Silica, crystalline (quartz)			STOT RE 1, H372
Magnesium oxide (MgO)	Calcined magnesite / Magnesium oxide / Magnesia	(CAS-No.) 1309-48-4	< 10	Not classified

Full text of H-phrases: 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: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

Skin Contact: Remove contaminated clothing. Immediately drench affected area with water for at least 15 minutes. If exposed or concerned: Get medical advice/attention. Obtain medical attention if irritation/rash develops or persists.

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 medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

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

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.

Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction. May cause skin to become dry or cracked.

Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Concrete may cause immediate or delayed irritation or inflammation. Eye contact with wet concrete can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Ingestion: Ingestion may cause adverse effects.

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: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3. Advice for Firefighters

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

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

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

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Hazardous Combustion Products: Calcium oxide. Carbon oxides (CO, CO₂). Oxides of magnesium. Silicon oxides. Sulfur oxides.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

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. Avoid release to the environment.

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. Vacuum clean-up is preferred. If sweeping is required use a dust suppressant. 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.

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.

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.

Incompatible Materials: Acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

7.3. Specific End Use(s)

TerraFlow™ is used as a mine backfill binder. TerraFlow is distributed as bulk shipment.

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.

Cement, portland, chemicals (65997-15-1)

USA ACGIH

ACGIH OEL TWA

1 mg/m³ (particulate matter containing no asbestos and <1% crystalline silica, respirable particulate matter)

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USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
USA OSHA	OSHA PEL (TWA) [2]	50 mppcf (<1% Crystalline silica) (See 29 CFR 1910.1000 TABLE Z-3)
USA NIOSH	NIOSH REL (TWA)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
USA IDLH	IDLH	5000 mg/m ³
Alberta	OEL TWA	10 mg/m ³
British Columbia	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica-respirable particulate)
Manitoba	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter-particulate matter, respirable particulate matter)
New Brunswick	OEL TWA	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Newfoundland & Labrador	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter-particulate matter, respirable particulate matter)
Nova Scotia	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter-particulate matter, respirable particulate matter)
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
Ontario	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica-respirable particulate matter)
Prince Edward Island	OEL TWA	1 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate matter-particulate matter, respirable particulate matter)
Québec	VEMP (OEL TWA)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-total dust) 5 mg/m ³ (containing no Asbestos and <1% Crystalline silica-respirable dust)
Saskatchewan	OEL STEL	20 mg/m ³
Saskatchewan	OEL TWA	10 mg/m ³
Yukon	OEL STEL	20 mg/m ³
Yukon	OEL TWA	30 mppcf 10 mg/m ³
Limestone (1317-65-3)		
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
Alberta	OEL TWA	10 mg/m ³
British Columbia	OEL STEL	20 mg/m ³ (total)
British Columbia	OEL TWA	10 mg/m ³ (total dust) 3 mg/m ³ (respirable fraction)
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

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Northwest Territories	OEL TWA	10 mg/m ³
Québec	VEMP (OEL TWA)	10 mg/m ³ (Limestone, 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
Yukon	OEL TWA	30 mppcf 10 mg/m ³
Calcium oxide (1305-78-8)		
USA ACGIH	ACGIH OEL TWA	2 mg/m ³
USA OSHA	OSHA PEL (TWA) [1]	5 mg/m ³
USA NIOSH	NIOSH REL (TWA)	2 mg/m ³
USA IDLH	IDLH	25 mg/m ³
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
Gypsum (Ca(SO₄).2H₂O) (13397-24-5)		
USA ACGIH	ACGIH OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
USA OSHA	OSHA PEL (TWA) [1]	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
USA NIOSH	NIOSH REL (TWA)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
Alberta	OEL TWA	10 mg/m ³ (Calcium sulphate)
British Columbia	OEL STEL	20 mg/m ³ (total)
British Columbia	OEL TWA	10 mg/m ³ (total dust) 3 mg/m ³ (respirable fraction) 10 mg/m ³ (regulated under Calcium sulfate-inhalable)
Manitoba	OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
Newfoundland & Labrador	OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
Nova Scotia	OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
Ontario	OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
Prince Edward Island	OEL TWA	10 mg/m ³ (inhalable particulate matter (Calcium sulfate))
Québec	VEMP (OEL TWA)	10 mg/m ³ (containing no Asbestos and <1% Crystalline silica-inhalable dust)
Saskatchewan	OEL STEL	20 mg/m ³
Saskatchewan	OEL TWA	10 mg/m ³
Yukon	OEL STEL	20 mg/m ³

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Yukon	OEL TWA	30 mppcf 10 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) [1]	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) [1]	50 µg/m ³ (Respirable crystalline silica)
USA OSHA	OSHA PEL (TWA) [2]	(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)
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 (respirable fraction (Silica - crystalline (Trydimite removed)))
Yukon	OEL TWA	300 particle/mL (Silica - Quartz, crystalline)

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: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

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	: Gray or White Powder
Odor	: Odorless
Odor Threshold	: Not available
pH	: 12 – 13 (in water)
Evaporation Rate	: Not available
Melting Point	: Not available
Freezing Point	: Not available
Boiling Point	: > 1000 °C (1832 °F)
Flash Point	: Not available
Auto-ignition Temperature	: Not available
Decomposition Temperature	: Not available
Flammability (solid, gas)	: Not available
Lower Flammable Limit	: Not available
Upper Flammable Limit	: Not available
Vapor Pressure	: Not available
Relative Vapor Density at 20°C	: Not available
Relative Density	: Not available
Specific Gravity	: 3.0 – 3.2 (water = 1)
Solubility	: Water: 0.1 - 1 % (slightly soluble)
Partition Coefficient: N-Octanol/Water	: Not available
Viscosity	: Not available

SECTION 10: STABILITY AND REACTIVITY

- 10.1. Reactivity:** Hazardous reactions will not occur under normal conditions.
- 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:** Acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

10.6. Hazardous Decomposition Products: Thermal decomposition may produce: Calcium oxides. Carbon oxides (CO, CO₂). Oxides of magnesium. 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

Acute Toxicity (Inhalation): Not classified

LD50 and LC50 Data: Not available

Skin Corrosion/Irritation: Causes skin irritation.

pH: 12 – 13 (in water)

Eye Damage/Irritation: Causes serious eye damage.

pH: 12 – 13 (in water)

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

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.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis. May cause an allergic skin reaction. May cause skin to become dry or cracked.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva. Concrete may cause immediate or delayed irritation or inflammation. Eye contact with wet concrete can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

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
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
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.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General: Harmful to aquatic life with long lasting effects.

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Calcium oxide (1305-78-8)	
LC50 Fish 1	50.6 mg/l

12.2. Persistence and Degradability

TerraFlow™	
Persistence and Degradability	May cause long-term adverse effects in the environment.

12.3. Bioaccumulative Potential

TerraFlow™	
Bioaccumulative Potential	Not established.

Calcium oxide (1305-78-8)	
BCF Fish 1	(no bioaccumulation)

12.4. Mobility in Soil Not available

12.5. Other Adverse Effects

Other Information: Avoid release to 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.

Ecology - Waste Materials: This material is hazardous to the aquatic environment. Keep out of sewers and waterways. Avoid release to the environment.

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 Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

14.4. In Accordance with TDG Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

TerraFlow™	
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 Health hazard - Respiratory or skin sensitization

Cement, portland, chemicals (65997-15-1)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Limestone (1317-65-3)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Calcium oxide (1305-78-8)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Magnesium oxide (MgO) (1309-48-4)	
Listed on the United States TSCA (Toxic Substances Control Act) inventory	

Quartz (14808-60-7)	
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			
Cement, portland, chemicals (65997-15-1)				
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				
Limestone (1317-65-3)				
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				
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				
Gypsum (Ca(SO4).2H2O) (13397-24-5)				
U.S. - New Jersey - Right to Know Hazardous Substance List				
U.S. - Pennsylvania - RTK (Right to Know) List				
Magnesium oxide (MgO) (1309-48-4)				
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				

15.3. Canadian Regulations

Cement, portland, chemicals (65997-15-1)
Listed on the Canadian DSL (Domestic Substances List)
Limestone (1317-65-3)
Listed on the Canadian NDSL (Non-Domestic Substances List)
Calcium oxide (1305-78-8)
Listed on the Canadian DSL (Domestic Substances List)
Gypsum (Ca(SO4).2H2O) (13397-24-5)
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)

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

Date of Preparation or Latest Revision : 05/12/2021

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
Carc. 1A	Carcinogenicity Category 1A

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Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
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
H315	Causes skin irritation
H317	May cause an allergic skin reaction
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

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