GRAYBOND™ BINDER - SCM for Concrete

Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2024 and the Hazardous Products Regulations (HPR) WHMIS 2022
Issue date: 2023-11-15 Revision date: 2025-11-04 Supersedes: 2025-05-23 Version: 3.2

SECTION 1 Identification

1.1. Product identifier

Product form : Mixture
Product name : GRAYBOND™ BINDER - SCM for Concrete

1.2. Other means of identification

No additional information available

1.3. Recommended use of the chemical and restrictions on use

Use of the substance/mixture : Engineered cementitious binder for construction and mining applications.

1.4. Supplier's details

Supplier
GRAYMONT
#200-10991 Shellbridge Way
Richmond, BC, V6X 3C6 - Canada
T 1 604 207-4292; Toll free1 866 207-4292 - F 1 604 207-9014
www.graymont.com

Distributor
GRAYMONT
585 W Southridge Way
Sandy, Utah, 84070 - United States
T +1 801-262-3942

1.5. Emergency phone number

Emergency number : CHEMTREC 1 (800) 424-9300
CHEMTREC International +1 (703) 527-3887 24 hr

SECTION 2 Hazard identification

2.1. Classification of the substance or mixture

GHS classification

Skin corrosion/irritation, Category 2
Serious eye damage/eye irritation, Category 1
Carcinogenicity, Category 1A
Specific target organ toxicity – Single exposure, Category 3, Respiratory tract irritation
Specific target organ toxicity, Repeated exposure, Category 1

2.2. Label elements

GHS labelling

Hazard pictograms (GHS) :

Signal word (GHS) : Danger
Hazard statements (GHS) : Causes skin irritation
Causes serious eye damage
May cause respiratory irritation
May cause cancer (Inhalation).
Causes damage to organs (lungs) through prolonged or repeated exposure
Precautionary statements (GHS) : Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dust, fume, gas, mist, vapours, spray.
Wash hands, forearms and face thoroughly after handling.

Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If exposed or concerned: Get medical advice/attention.
If on skin: Wash with plenty of water.
Take off contaminated clothing and wash it before reuse.
If skin irritation occurs: Get medical advice or attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Immediately call a poison center or doctor.
Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Dispose of contents and/or container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulations.

2.3. Hazards associated with known or reasonably anticipated uses

No additional information available

2.4. Hazards not otherwise classified

No additional information available

2.5. Unknown acute toxicity

Not applicable

SECTION 3 Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%Weight
Silica, amorphous	Silica, amorphous Amorphous silica / Silica / Silica, amorphous, fumed / Silica, colloidal / Silicon dioxide / Silicon dioxide, amorphous / SILICA / Silicon(IV) oxide / Un-crystalline silica / Pigment White 27 / Silicon dioxide (amorphous) / Silicon dioxide amorphous / Fumed silica / SOLUM DIATOMEAE / Hydrated silica	CAS-No.: 7631-86-9	30 - 85
Calcium oxide	Calcium oxide Lime / Quicklime / CALCIUM OXIDE / Quicklime (CaO) / Calcium oxide (CaO) / Lime (calcium oxide)	CAS-No.: 1305-78-8	1 - 35

Name	Chemical name / Synonyms	Product identifier	%Weight
Aluminum oxide (Al2O3)	Aluminum oxide (Al2O3) Aluminum oxide / .alpha.-Alumina / Alumina / Aluminium oxide / Aluminium oxide (Al2O3) / .alpha.-Aluminum oxide / Alundum / ALUMINA / Dialuminium trioxide / Dialuminum trioxide	CAS-No.: 1344-28-1	1 – 30
Limestone	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	1 - 20
Quartz	Quartz Quartz (SiO2) / Silica, crystalline, quartz / Crystalline silica, quartz / .alpha.-Quartz / Silica, crystalline, .alpha.-quartz / QUARTZ / Crystalline silica in the form of quartz / Quartz, silica / Quartz (respirable fraction) / Silica dust / Silica, crystalline-.alpha.quartz / Silica, .alpha.-quartz / Silicon dioxide / Silica, quartz / Silica, crystalline / Quartz (crystalline silica) / Silica dust, crystalline / QUARTZ POWDER / Silica, crystalline (quartz)	CAS-No.: 14808-60-7	1 – 5
Silica, cristobalite	Silica, cristobalite Cristobalite / Cristobalite (SiO2) / Silica, crystalline - cristobalite / Silica, crystalline, cristobalite / Silica-crystalline, cristobalite / Cristobalite (Silica) / Silica, crystalline cristobalite / Silica - crystalline, cristobalite / Silica crystalline, cristobalite / Silica-crystalline cristobalite / Silica, crystalline-cristobalite / Silica (crystalline, cristobalite) / Silica crystalline cristobalite / Crystalline SiO2, cristobalite / Crystalline silica in the form of cristobalite / Silica, crystalline (cristobalite) / Silica, crystalline / Silica crystalline / Crystalline silica, cristobalite	CAS-No.: 14464-46-1	0.1 – 1

Comments : Any concentration shown as a range is to protect confidentiality or is due to batch variation. If a generic chemical name is shown and/or the CAS number is not disclosed, the specific chemical identity has been withheld as a trade secret.

SECTION 4 First-aid measures

4.1. Description of necessary first-aid measures

First-aid measures general : If exposed or concerned: Get medical advice/attention.

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center/doctor if you feel unwell.

First-aid measures after skin contact : If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Treat with Diphoterine if exposure occurs in Canada where it is permitted for use as an emergency rinsing solution.

First-aid measures after ingestion : Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms/effects, acute and delayed

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.

Symptoms/effects after eye contact : Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic symptoms : May cause cancer. Causes damage to organs through prolonged or repeated exposure.

4.3. Indication of immediate medical attention and special treatment needed, if necessary

Other medical advice or treatment : Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

SECTION 5 Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

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

Unsuitable extinguishing media : Do not use water jet.

5.2. Specific hazards arising from the chemical

Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Special protective equipment and precautions for fire-fighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6 Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

For non-emergency personnel

No additional information available

For emergency responders

Environmental precautions : Prevent entry to sewers and public waters.

6.2. Methods and materials for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Minimise dust generation. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor. Provide ventilation.

For further information refer to section 8: "Exposure controls/personal protection"

SECTION 7 Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Do not breathe dust. Avoid dust formation. Do not swallow. When using do not eat, drink or smoke. Handle and open container with care. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended.

Hygiene measures : Take off contaminated clothing and wash it before reuse. Always wash hands after handling the product.

7.2. Conditions for safe storage, including incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Store locked up. Store in a well-ventilated place. Store in dust-tight, dry, labelled containers. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area.

Specific end uses : Engineered cementitious binder for construction and mining applications.

SECTION 8 Exposure controls/personal protection

8.1. Control parameters

GRAYBOND™ BINDER - SCM for Concrete
No additional information available

Limestone (1317-65-3)	
Canada (Alberta) - Occupational Exposure Limits	
Local name	Limestone (Calcium carbonate, Aragonite, Calcite, Marble, Vaterite)
OEL TWA	10 mg/m³
Notations and remarks	Occupational exposure limit is based on irritation effects and its adjustment to compensate for unusual work schedules is not required.
Regulatory reference	Alberta Regulation 191/2021
Canada (British Columbia) - Occupational Exposure Limits	
Local name	Calcium carbonate (incl. Limestone, Marble)
OEL TWA	10 mg/m³ (total dust) 3 mg/m³ (respirable fraction)
OEL STEL	20 mg/m³ (total)
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)

Limestone (1317-65-3)	
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWAEV)	10 mg/m³ (Limestone, containing no Asbestos and <1% Crystalline silica-total dust)
Canada (Nunavut) - Occupational Exposure Limits	
Local name	Limestone (calcium carbonate)
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016 (Amendment R-044-2021)
Canada (Northwest Territories) - Occupational Exposure Limits	
Local name	Limestone (calcium carbonate)
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Saskatchewan) - Occupational Exposure Limits	
Local name	Limestone (calcium carbonate)
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Regulatory reference	The Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	30 mppcf 10 mg/m³
OEL STEL	20 mg/m³
USA - OSHA - Occupational Exposure Limits	
Local name	Calcium Carbonate (Limestone; Marble)
OSHA PEL TWA [1]	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	10 mg/m³ (total dust) 5 mg/m³ (respirable dust)

Silica, amorphous (7631-86-9)	
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	300 particle/mL (as measured by Konimeter instrumentation (Silica) 20 mppcf (as measured by Impinger instrumentation (Silica) 2 mg/m³ (respirable mass (Silica)
USA - IDLH - Occupational Exposure Limits	
IDLH	3000 mg/m³
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	6 mg/m³

Calcium oxide (1305-78-8)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
OEL STEL	4 mg/m³
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
OEL STEL	4 mg/m³
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWAEV)	2 mg/m³
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
OEL STEL	4 mg/m³
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	2 mg/m³
OEL STEL	4 mg/m³
USA - ACGIH - Occupational Exposure Limits	
Local name	Calcium oxide
ACGIH OEL TWA	2 mg/m³
Remark (ACGIH)	TLV® Basis: URT irr
Regulatory reference	ACGIH 2020
USA - OSHA - Occupational Exposure Limits	
Local name	Calcium oxide
OSHA PEL TWA [1]	5 mg/m³

Calcium oxide (1305-78-8)	
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1
USA - IDLH - Occupational Exposure Limits	
IDLH	25 mg/m³
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	2 mg/m³
USA - MSHA - Occupational Exposure Limits	
MSHA PEL TWA	2 mg/m³

Quartz (14808-60-7)	
Canada (Alberta) - Occupational Exposure Limits	
Local name	Silica-Crystalline: Quartz
OEL TWA	0.025 mg/m³ (respirable particulate)
Notations and remarks	Carcinogenicity A2
Regulatory reference	Alberta Regulation 191/2021
Canada (British Columbia) - Occupational Exposure Limits	
Local name	Silica, Crystalline - alpha quartz
OEL TWA	0.025 mg/m³ (respirable)
Notations and remarks	ACGIH Carcinogenicity category A2; IARC group 1 carcinogen
Regulatory reference	OHS Guidelines Part 5: Chemical Agents and Biological Agents (WorkSafe BC)
Canada (Manitoba) - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Notations and remarks	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable fraction)
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Notations and remarks	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Nova Scotia) - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Notations and remarks	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Nunavut) - Occupational Exposure Limits	
Local name	Silica - Crystalline: Quartz

Quartz (14808-60-7)	
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline)
Notations and remarks	Designated substance
Regulatory reference	Occupational Health and Safety Regulations, Nu Reg 003-2016 (Amendment R-044-2021)
Canada (Northwest Territories) - Occupational Exposure Limits	
Local name	Silica - Crystalline: Quartz
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline)
Notations and remarks	Designated substance
Regulatory reference	Occupation Health and Safety Regulations R-039-2015 (R-013-2020)
Canada (Ontario) - Occupational Exposure Limits	
Local name	Silica, Crystalline - Quartz
OEL TWA	0.1 mg/m³ (designated substances regulation-respirable fraction (Silica, crystalline)
Regulatory reference	Ontario Occuational Exposure Limits under Regulation 833
Canada (Quebec) - Occupational Exposure Limits	
Local name	Silica - Crystalline, Quartz
VEMP (OEL TWAEV)	0.1 mg/m³ (respirable dust)
Notations and remarks	C2, EM
Regulatory reference	S-2.1, r. 13 - Regulation respecting occupational health and safety
Canada (Prince Edward Island) - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Notations and remarks	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
Regulatory reference	ACGIH 2023
Canada (Saskatchewan) - Occupational Exposure Limits	
Local name	Silica - Crystalline: Quartz
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline (Trydimite removed))
Notations and remarks	Designated Chemical Substance
Regulatory reference	The Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	300 particle/mL (Silica - Quartz, crystalline)
USA - ACGIH - Occupational Exposure Limits	
Local name	Silica crystaline - quartz
ACGIH OEL TWA	0.025 mg/m³ (respirable particulate matter)
Remark (ACGIH)	TLV® Basis: Pulm fibrosis; lung cancer. Notations: A2 (Suspected Human Carcinogen)
ACGIH chemical category	Suspected Human Carcinogen
Regulatory reference	ACGIH 2023
USA - OSHA - Occupational Exposure Limits	
Local name	Quartz (Total Dust) (Silica: Crystalline)

Quartz (14808-60-7)	
OSHA PEL TWA [1]	50 µg/m³ (Respirable crystalline silica)
Remark (OSHA)	Table Z-3. For OSHA PEL (TWA) use formula: (30 mg/m3 / (%SiO2+2)) for mg/m3. CAS No. source: eCFR Table Z-1.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
USA - IDLH - Occupational Exposure Limits	
IDLH	50 mg/m³ (respirable dust)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	0.05 mg/m³ (respirable dust)
USA - MSHA - Occupational Exposure Limits	
MSHA PEL TWA 8/40 h	30 mg/m³ / (%SiO2) + 2 mg/m³ (Total dust) 10 mg/m³ / (%SiO2) + 2 mg/m³ (Respirable dust)

Silica, cristobalite (14464-46-1)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable particulate)
Canada (British Columbia) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable)
Canada (Manitoba) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Canada (New Brunswick) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable fraction)
Canada (Newfoundland and Labrador) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Canada (Nova Scotia) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline)
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline)
Canada (Ontario) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m³ (designated substances regulation-respirable fraction (Silica, crystalline)
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWAEV)	0.05 mg/m³ (respirable dust)
Canada (Prince Edward Island) - Occupational Exposure Limits	
OEL TWA	0.025 mg/m³ (respirable particulate matter)
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	0.05 mg/m³ (Trydimite removed-respirable fraction (Silica - crystalline (Trydimite removed))
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	150 particle/mL (Silica)

Silica, cristobalite (14464-46-1)	
USA - ACGIH - Occupational Exposure Limits	
ACGIH OEL TWA	0.025 mg/m³ (respirable particulate matter)
ACGIH chemical category	Suspected Human Carcinogen
USA - OSHA - Occupational Exposure Limits	
Local name	Cristobalite (Silica: Crystalline)
OSHA PEL TWA [1]	50 µg/m³ (Respirable crystalline silica)
Remark (OSHA)	Table Z-3. For OSHA PEL (TWA): Use ½ the value calculated from the count or mass formulae for quartz. CAS No. source: eCFR Table Z-1.
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-3 Mineral Dusts
USA - IDLH - Occupational Exposure Limits	
IDLH	25 mg/m³ (respirable dust)
USA - NIOSH - Occupational Exposure Limits	
NIOSH REL TWA	0.05 mg/m³ (respirable dust)
USA - MSHA - Occupational Exposure Limits	
MSHA PEL TWA	0.025 mg/m³ (respirable particulate matter)

Aluminum oxide (Al2O3) (1344-28-1)	
Canada (Alberta) - Occupational Exposure Limits	
OEL TWA	10 mg/m³
Canada (Northwest Territories) - Occupational Exposure Limits	
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Canada (Nunavut) - Occupational Exposure Limits	
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Canada (Quebec) - Occupational Exposure Limits	
VEMP (OEL TWAEV)	10 mg/m³ (containing no Asbestos and <1% Crystalline silica-total dust)
Canada (Saskatchewan) - Occupational Exposure Limits	
OEL TWA	10 mg/m³
OEL STEL	20 mg/m³
Canada (Yukon) - Occupational Exposure Limits	
OEL TWA	30 mppcf (Al2O3) 10 mg/m³ (Al2O3)
OEL STEL	20 mg/m³ (Al2O3)
USA - OSHA - Occupational Exposure Limits	
OSHA PEL TWA	15 mg/m³ (total dust) 5 mg/m³ (respirable fraction)

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station. Provide readily accessible eye wash stations and safety showers.

Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures, such as personal protective equipment

Hand protection:

Wear suitable gloves resistant to chemical penetration. Consult glove manufacturer's product information on material suitability and material thickness.

Eye protection:

Wear eye/face protection

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. SDSs cannot provide detailed and complete respiratory protection guidelines. Selection of respiratory protection must be done by a qualified person who has assessed the work environment.

Other information:

Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

SECTION 9 Physical and chemical properties

9.1. Basic physical and chemical properties

Physical state	:	Solid
Colour	:	No data available
Odour	:	No data available
Odour threshold	:	No data available
pH	:	No data available
Melting point	:	No data available
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Flammability (solid, gas)	:	Not flammable.
Vapour pressure	:	No data available
Relative vapour density at 20°C/ 68 °F	:	No data available
Relative density	:	No data available
Solubility	:	No data available
Partition coefficient n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Explosive limits	:	No data available
Particle characteristics	:	No data available

Silica, amorphous	
Boiling point	2230 °C
Vapour pressure	13.3 hPa (at 1732 °C)

Calcium oxide	
Boiling point	2850 °C Atm. press.: 101325 Pa Decomposition: 'no'
Vapour pressure	0 hPa (at 20 °C)

Quartz	
Boiling point	2230 °C

Silica, cristobalite	
Boiling point	2230 °C

Aluminum oxide (Al2O3)	
Boiling point	2977 °C Remarks on result: 'other:'
Vapour pressure	0 hPa (at 20 °C)

9.2. Data relevant with regard to physical hazard classes (supplemental)

No additional information available

SECTION 10 Stability and reactivity

10.1. Reactivity

No dangerous reactions known under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Incompatible materials.

10.5. Incompatible materials

Strong oxidizers.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon.

SECTION 11 Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Not classified.
Acute toxicity (dermal) : Not classified.
Acute toxicity (inhalation) : Not classified.

Silica, amorphous (7631-86-9)	
LD50 oral rat	7900 mg/kg (Source: ATSDR)

Silica, amorphous (7631-86-9)	
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity)
LD50 dermal rabbit	> 5000 mg/kg (Source: ECETOC)
LC50 inhalation rat	> 58.8 mg/l/4h

Calcium oxide (1305-78-8)	
LD50 oral rat	> 2000 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 425 (Acute Oral Toxicity: Up-and-Down Procedure)
LD50 dermal rat	> 2000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 402 (Acute Dermal Toxicity), Guideline: EU Method B.3 (Acute Toxicity (Dermal))
LD50 dermal rabbit	> 5000 mg/kg bodyweight Animal: rabbit, Guideline: other:US Federal Register 38: 187, Part 1500, Section 41, 1973.
LC50 inhalation rat	> 6.04 mg/l air Animal: rat, Guideline: OECD Guideline 436 (Acute Inhalation Toxicity: Acute Toxic Class Method)

Aluminum oxide (Al2O3) (1344-28-1)	
LD50 oral rat	> 5000 mg/kg (Source: IUCLID)

Skin corrosion/irritation : Causes skin irritation.

Calcium oxide (1305-78-8)	
pH	12.5 (saturated solution)

Serious eye damage/irritation : Causes serious eye damage.

Calcium oxide (1305-78-8)	
pH	12.5 (saturated solution)

Respiratory or skin sensitisation : Not classified.

Germ cell mutagenicity : Not classified.

Carcinogenicity : May cause cancer (Inhalation).

Silica, amorphous (7631-86-9)	
NOAEL (chronic, oral, animal/male, 2 years)	1800 – 3000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
NOAEL (chronic, oral, animal/female, 2 years)	1800 – 3200 mg/kg bodyweight Animal: rat, Animal sex: female, Guideline: OECD Guideline 453 (Combined Chronic Toxicity / Carcinogenicity Studies)
IARC group	3 - Not classifiable

Quartz (14808-60-7)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes

Silica, cristobalite (14464-46-1)	
IARC group	1 - Carcinogenic to humans
National Toxicology Program (NTP) Status	Known Human Carcinogens
In OSHA Hazard Communication Carcinogen list	Yes

Reproductive toxicity : Not classified.

Aluminum oxide (Al2O3) (1344-28-1)	
NOAEL (animal/male, F0/P)	1000 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

STOT-single exposure : May cause respiratory irritation.

Calcium oxide (1305-78-8)	
STOT-single exposure	May cause respiratory irritation.

STOT-repeated exposure : Causes damage to organs (lungs) through prolonged or repeated exposure.
Respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of dust exposure and the length of time (usually years) of exposure.

Silica, amorphous (7631-86-9)	
NOAEL (dermal, rat/rabbit, 90 days)	≥ 10000 mg/kg bodyweight Animal: rabbit

Calcium oxide (1305-78-8)	
LOAEL (oral, rat, 90 days)	300 mg/kg bodyweight Animal: rat, Animal sex: male, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (oral, rat, 90 days)	1000 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.413 mg/l air Animal: rat, Animal sex: male, Guideline: OECD Guideline 412 (Subacute Inhalation Toxicity: 28-Day Study)

Quartz (14808-60-7)	
Additional information	Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a scarring of the lungs. This disease may be disabling as it reduces lung capacity. The risk of contracting silicosis and the severity of the disease is related to the amount of dust exposure and the length of time (usually years) of exposure.
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Silica, cristobalite (14464-46-1)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aluminum oxide (Al2O3) (1344-28-1)	
LOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.015 mg/l air Animal: rat, Guideline: OECD Guideline 452 (Chronic Toxicity Studies)
NOAEC (inhalation, rat, dust/mist/fume, 90 days)	0.07 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

Aspiration hazard : Not classified.

GRAYBOND™ BINDER - SCM for Concrete	
Viscosity, kinematic	No data available

Limestone (1317-65-3)	
Viscosity, kinematic	No data available
Silica, amorphous (7631-86-9)	
Viscosity, kinematic	No data available

Calcium oxide (1305-78-8)	
Viscosity, kinematic	223.529 – 230.303 mm²/s
Quartz (14808-60-7)	
Viscosity, kinematic	No data available
Silica, cristobalite (14464-46-1)	
Viscosity, kinematic	No data available
Aluminum oxide (Al2O3) (1344-28-1)	
Viscosity, kinematic	No data available

Symptoms/effects after inhalation : May cause irritation to the respiratory tract.

Symptoms/effects after skin contact : Causes skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.

Symptoms/effects after eye contact : Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.

Symptoms/effects after ingestion : May be harmful if swallowed. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic symptoms : May cause cancer. Causes damage to organs through prolonged or repeated exposure.

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12 Ecological information

12.1. Ecotoxicity

Ecology - general : No known significant effects or critical hazards.

Silica, amorphous (7631-86-9)	
LC50 - Fish [1]	5000 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static] Source: IUCLID)
EC50 - Crustacea [1]	7600 mg/l (Exposure time: 48 h - Species: Ceriodaphnia dubia)
EC50 72h - Algae [1]	440 mg/l (Species: Pseudokirchneriella subcapitata)
LOEC (chronic)	149.2 mg/l Test organisms (species): Daphnia magna Duration: '21 d'

Calcium oxide (1305-78-8)	
LC50 - Fish [1]	1070 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static] Source: IUCLID)
EC50 - Crustacea [1]	49.1 mg/l Test organisms (species): Daphnia magna
EC50 72h - Algae [1]	> 100 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)
EC50 96h - Algae [1]	1130.3 mg/l Test organisms (species): Navicula seminulum
NOEC (chronic)	32 mg/l Test organisms (species): Crangon septemspinosa Duration: '14 d'
NOEC chronic fish	100 mg/l Test organisms (species): other:Tilapia nilotica Duration: '46 d'

Aluminum oxide (Al2O3) (1344-28-1)	
EC50 72h - Algae [1]	1.05 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

Aluminum oxide (Al2O3) (1344-28-1)	
EC50 72h - Algae [2]	0.2 mg/l Test organisms (species): Pseudokirchneriella subcapitata (previous names: Raphidocelis subcapitata, Selenastrum capricornutum)

12.2. Persistence and degradability

GRAYBOND™ BINDER - SCM for Concrete	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

GRAYBOND™ BINDER - SCM for Concrete	
Bioaccumulative potential	Not established.

Silica, amorphous (7631-86-9)	
BCF - Fish [1]	(no bioaccumulation expected)

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

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified.
Fluorinated greenhouse gases : No

Other information : No other effects known.

SECTION 13 Disposal considerations

Product/Packaging disposal recommendations : Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

SECTION 14 Transport information

In accordance with DOT / TDG / IMDG / IATA

14.1. UN Number

Not regulated for transport

14.2. UN Proper Shipping Name

Proper Shipping Name (DOT) : Not regulated
Proper Shipping Name (TDG) : Not regulated
Proper Shipping Name (IMDG) : Not regulated
Proper Shipping Name (IATA) : Not regulated

14.3. Transport hazard class(es)

DOT
Transport hazard class(es) (DOT) : Not regulated

TDG

Transport hazard class(es) (TDG) : Not regulated

IMDG

Transport hazard class(es) (IMDG) : Not regulated

IATA

Transport hazard class(es) (IATA) : Not regulated

14.4. Packing group

Packing group (DOT) : Not regulated
Packing group (TDG) : Not regulated
Packing group (IMDG) : Not regulated
Packing group (IATA) : Not regulated

14.5. Environmental hazards

Other information : No supplementary information available.

14.6. Transport in bulk

Not applicable

14.7. Special precautions for user

DOT

Not regulated

TDG

Not regulated

IMDG

Not regulated

IATA

Not regulated

SECTION 15 Regulatory information

15.1. Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

Aluminum oxide (Al2O3) (1344-28-1)

Subject to reporting requirements of United States SARA Section 313

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

15.2. International regulations

No additional information available

15.3. State regulations

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

Component	State or local regulations
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
Silica, amorphous(7631-86-9)	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
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, cristobalite(14464-46-1)	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
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

SECTION 16 Other Information

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2024 and the Hazardous Products Regulations (HPR) WHMIS 2022

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Other information : None.

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Indication of changes:		
Section	**Changed item**	**Comments**
SDS	Disclosure	**Modified** V 2.0
1	Supplier information	**Modified** V 2.1
3	Composition/information on ingredients	**Modified** V 3.1
4	First aid measures	**Modified** V 3.2

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