

SAFETY DATA SHEET

Section 1: Identification

1.1 Product identifier:

Portland Cement

Other means of identification:

- CSA A3000 Types GU, MS, MH, HE, LH, HS
- ASTM C150; Types I, II, III, IV, V
- GUPR
- GULA

1.2 Recommended use and restrictions on use:

Identified uses:

Industrial uses in the manufacture of concrete, mortars and grouts for building materials and pavement.

Restrictions on use:

Keep out of reach of children.

1.3 Supplier identifier:

Ash Grove, a division of CRH Canada Group Inc.
2391 Lakeshore Road West
Mississauga Ontario
L5J 1K1
Information Telephone Number: 905-822-1653

1.4 Emergency telephone number:

In Canada: 1-613-996-6666 CANUTEC (Call Collect or *666 Cellular) 24-hours
In USA: 800-451-8346 3E COMPANY 24-hours

Section 2: Hazards Identification

2.1 Classification:

According to US Hazard Communication Standard (29 CFR 1910.1200) and Canada Hazardous Products Regulations (WHMIS 2015).

Skin Corrosion Cat. 1; H314

Eye Damage Cat. 1; H318

Skin Sensitization Cat. 1; H317

Specific Target Organ Toxicity, Single Exposure Cat. 3; H335

Carcinogenicity (inhalation) Cat. 1; H350

Specific Target Organ Toxicity, Repeated Exposure (inhalation), Cat. 1; H372

2.2 Label elements:



Danger.

Causes severe skin burns and eye damage.

May cause an allergic skin reaction.

May cause respiratory irritation.

May cause cancer if inhaled.

Causes damage to lungs through prolonged or repeated exposure by inhalation.

Prevention

Obtain special instructions before use.

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

Do not breathe dusts.

Wash hands and exposed skin thoroughly after handling.

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

Use only outdoors or in a well ventilated area.

Contaminated work clothing should not be allowed out of the workplace.

Wear eye protection, face protection, protective gloves, protective clothing and rubber boots.

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2.2 Label elements:

Response

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor.

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.

Take off contaminated clothing and wash it before reuse.

If skin irritation or rash occurs: Immediately call a POISON CENTER or doctor.

IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER or doctor.

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.

IF exposed or concerned: Get medical attention.

Storage

Store locked up.

Disposal

Recycle and or dispose of contents and containers in accordance with local, regional, national and international regulations.

2.3 Other hazards:

Dusts from this product, when combined with water or sweat, produce a corrosive alkaline solution.

The potential exists for static build-up and static discharge when moving cement powders through a plastic, nonconductive or non-grounded pneumatic conveyance system. Static discharge may result in damage to equipment and injury to workers.

Section 3: Composition/Information on Ingredients

Chemical Name	CAS No.	Wt.%	GHS Classification
Portland cement Common name: Cement	65997-15-1	90 - 100	Skin Irrit. 2; H315 Eye Dam. 1; H318 STOT SE 3; H335
Calcium sulfate Common name: Gypsum	13397-24-5	0 - 5	Not classified
Calcium oxide Common name: Quicklime	1305-78-8	0.3 – 3.0	Skin corr. 1; H314 Eye Dam. 1; H318
Silicon dioxide as Quartz Common name: Crystalline silica, Quartz	14808-60-7	0.1 - 1.5	Carc. 1; H350 (inhalation) STOT RE1; H372
Chromate compounds	Not available	Cr VI=6.8 µg/g Trace Equivalent of 6.8 ppm	Not available
Nickel compounds	Not available	Trace (<0.1%)	Not available

Section 4: First-Aid Measures

4.1 Description of first-aid measures:

Precautions: First aid providers should avoid direct contact with this chemical. Wear chemical protective gloves, if necessary. Take precautions to ensure your own safety before attempting rescue, (e.g. wear appropriate protective equipment).

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of Portland cement requires immediate medical attention. Call a poison center or doctor. If the individual is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.

Eye Contact: Immediately rinse eyes cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. Take care not to rinse contaminated water into the unaffected eye or onto face.

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4.1 Description of first-aid measures:

Skin Contact: Immediately remove all contaminated clothing. Rinse skin with water or shower. Get medical attention immediately. Heavy exposure to Portland cement dust, wet concrete or associated water requires prompt attention. Quickly remove contaminated clothing, shoes and leather goods such as watchbands and belts. Quickly and gently blot or brush away excess Portland cement. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH neutral soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement. Burns should be treated promptly by a doctor.

Ingestion: Rinse mouth. Do not induce vomiting. Obtain medical attention immediately or transport victim to an emergency treatment center.

4.2 Most important symptoms and effects, both acute and delayed:

Inhalation: High concentrations of airborne dusts are severely irritating to the upper respiratory tract with symptoms such as coughing, sneezing and shortness of breath. Long-term inhalation exposure to dusts containing respirable size crystalline silica can cause silicosis and lung cancer.

Eye Contact: Severely irritating in contact with eyes. Causes eye damage which may be permanent and may cause blindness. Solid particles react with moisture in the eye to form clumps of moist compound which may be difficult to remove.

Skin Contact: Dusts from this product, when combined with water or sweat, produce a severely irritating alkaline solution and burning of the skin. Wet Portland cement can cause burns to skin and eyes. Cement burns may result in blisters, dead or hardened skin, or black or green skin. In severe cases, these burns may extend to the bone and cause disfiguring scars or disability.

Workers cannot rely on pain or discomfort to alert them to cement burns because cement burns may not cause immediate pain or discomfort. By the time the worker becomes aware of a cement burn, much damage has already been done. Cement burns can get worse even after skin contact with cement has ended. Any person experiencing a cement burn is advised to see a health care professional immediately.

May cause an allergic skin reaction from trace amounts of sensitizing metals in cement. Symptoms of an allergy range from mild rashes to severe skin ulcers.

Ingestion: Severely irritating to the mouth, throat and gastro-intestinal system if swallowed. Symptoms may include severe pain and burning of the mouth, throat, esophagus and gastrointestinal tract with nausea, vomiting and diarrhea. If aspiration into the lungs occurs during vomiting, severe lung damage may result.

4.3 Immediate medical attention and special treatment needed:

Cement burns must be treated promptly by a physician.

Section 5: Fire-fighting Measures

5.1 Extinguishing media:

Use extinguishing media appropriate to the surrounding fire conditions. Use flooding quantities of water as a spray.

Unsuitable extinguishing media: Use caution when using water. Do not get water inside closed containers; contact with water will generate heat. Water jet may cause spattering of the corrosive solution.

Use caution when using CO₂; it may scatter the dry powder.

5.2 Specific hazards arising from the product:

Product is not flammable or combustible.

Bulk powder of this product may heat spontaneously when damp with water.

Corrosive; reacts with water releasing heat and forming an alkaline solution.

5.3 Special protective equipment and precautions for firefighters:

As for any fire, evacuate the area and fight the fire from a safe distance.

Firefighters must wear full protective equipment including self-contained breathing apparatus with chemical protection clothing when firefighters are exposed to decomposition products from this material.

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Section 6: Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures:

Wear adequate personal protective equipment, including an appropriate respirator as indicated in Section 8.
Isolate spill area, preventing entry by unauthorized persons.
Do not breathe dusts.

6.2 Environmental precautions:

Avoid releases to the environment and prevent material from entering sewers, natural waterways or storm water management systems.

6.3 Methods and material for containment and cleaning up:

Move containers from spill area if it can be done without risk.
Avoid dust generation and prevent wind dispersal. Do not dry sweep or blow with compressed air.
Use a dust suppressant when needed to prevent airborne dispersion.
Scoop up or vacuum dust with equipment fitted with a HEPA filter and place in a closed, labelled container.
Small spills may be picked up with a damp mop.

6.4 Additional Information:

See Section 8 for information on selection of personal protective equipment.
See Section 13 for information on disposal.

Section 7: Handling and Storage

7.1 Precautions for safe handling:

Before handling, it is important that engineering controls are operating, protective equipment requirements and personal hygiene measures are being followed. People working with this chemical should be properly trained regarding its hazards and its safe use.
Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Do not breathe dusts.
Wash hands and exposed skin thoroughly after handling. Wash with plenty of water and pH neutral soap; do not use waterless hand cleaners such as alcohol-based gels. Clean nail beds and creases between fingers. Dry hands thoroughly with a clean towel before putting on gloves.
Avoid wearing watches and rings at work; wet cement can collect next to the skin and cause burns.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace
Prevent eye contact: Wear protective gloves, protective clothing and eye protection or face protection.
Use containers with securely fitting lids when transporting cement powder.
Avoid methods of handling cement powder, like sweeping that allows it to become airborne and come in contact with eyes.
Follow good practices for safe glove removal.
Static Hazard: Properly ground all pneumatic conveyance systems. Static discharge may result in damage to equipment and injury to workers.
Do not enter a confined space that stores or contains Portland cement unless appropriate procedures and protections are in place. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).
Refer to occupational guidance related to safe work practices for handling cement in the relevant jurisdiction.

7.2 Conditions for safe storage:

Store in a dry, well-ventilated area, away from incompatible materials.
Keep containers closed.
Protect from moisture/humidity.
Store in a place accessible by authorized persons only.
Store away from food and animal feed.
Keep out of reach of children.

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Section 8: Exposure Controls / Personal Protection

8.1 Control parameters:

Occupational Exposure Limits: Consult local authorities for acceptable exposure limits.

<u>Ingredient</u>	<u>ACGIH® TLV®</u>	<u>U.S. OSHA PEL</u>	<u>Other Exposure Limits</u>
Portland Cement	1 mg/m ³ (respirable)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable)	NIOSH REL: 10 mg/m ³ NIOSH IDLH: 5000 mg/m ³
Calcium sulfate	10 mg/m ³ (inhalable)	15 mg/m ³ (total dust); 5 mg/m ³ (respirable)	Quebec (Canada TWA): 5 mg/m ³ (Poussières respirables) 10 mg/m ³ (Poussières totales)
Calcium oxide	2 mg/m ³	5 mg/m ³	NIOSH REL: 2 mg/m ³ NIOSH IDLH: 25 mg/m ³
Crystalline silica (Quartz)	0.025 mg/m ³ (respirable)	50 µg/m ³ (respirable) TWA 29 CFR 1910.1053(l)	NIOSH IDLH: 50 mg/m ³ RSST VEMP (Quebec-Canada): 0.1 mg/m ³ (respirable) TWA Ontario: 0.1 mg/m ³ (respirable) Designated Substance
Chromium, insoluble compounds	0.01 mg/m ³	5 µg/m ³	Quebec (Canada TWA): 0.01 mg/m ³

8.2 Exposure controls:

Engineering Controls: Handle product in a closed system or in an area with appropriate exhaust ventilation. If airborne particulates are generated, monitor dust concentrations in air and provide local exhaust ventilation when any exposure guideline is exceeded.
Ensure regular cleaning of equipment, work area and clothing.

If engineering controls and work practices are not effective in controlling exposure to this material, then wear suitable personal protective equipment including approved respiratory protection. Have equipment available for use in emergencies such as spills.

8.3 Individual Protection Measures:

Eye/Face Protection: Wear approved tight-fitting chemical safety goggles. Do not wear contact lenses while handling cement. Wear a face-shield or full-face respirator when needed to prevent exposure to airborne dusts. Contact lenses should not be worn.

Skin Protection: Wear waterproof, snug-fitting alkali-resistant gloves, boots, knee and elbow pads to prevent skin exposure. Wear protective clothing with long-sleeves and long pants. Protective clothing can be taped inside gloves and boots.. Evaluate resistance under conditions of use and maintain protective clothing carefully. Contact safety supplier for specifications. Follow proper procedures for removing gloves.

Respiratory Protection: When dust concentrations in air exceed the occupational exposure guidelines, always wear an approved respirator. Wear an approved air-purifying respirator with an appropriate cartridge, N95 rating or higher. Consult with respirator manufacturer to determine respirator selection, use and limitations.

A respiratory protection program that meets the regulatory requirement, such as OSHA's 29 CFR 1910.134, ANSI Z88.2 or Canadian Standards Association (CSA) Standard Z94.4, must be followed whenever workplace conditions warrant a respirator's use.

Other Protection: Have adequate washing facilities and eyewash fountain readily available in the work area for immediate emergency use.

Every attempt should be made to avoid skin and eye contact with cement. Do not get powder inside boots, shoes or gloves. Do not allow wet, saturated clothing to remain against the skin. Promptly remove clothing and shoes that are dusty or wet with cement mixtures. Wash clothing and shoes thoroughly before reuse.

Do not enter a confined space that stores or contains Portland cement unless appropriate procedures and protections are in place. Portland cement can build up or adhere to the walls of a confined space and then release or fall suddenly (engulfment).

Do not eat, drink or smoke where this material is handled, stored and processed. Wash hands thoroughly before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas.

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Section 9: Physical and Chemical Properties

9.1 Information on basic physical and chemical properties:

Appearance:	Solid; grey or white powder
Odour:	Odourless
Odour threshold:	Not applicable
pH:	>12
Melting point/freezing point:	Not applicable
Initial boiling point and boiling range:	Not applicable
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability:	Not flammable or combustible
Upper/lower flammability or explosive limits:	Not applicable
Vapour pressure:	Not applicable
Vapour density:	Not applicable
Relative density:	3.1 – 3.2 (water = 1)
Solubility (ies):	Slightly soluble in water (0.1 – 1%)
Partition coefficient (n-octanol/water):	Not applicable
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not applicable

Section 10: Stability and Reactivity

10.1 Reactivity:

Reacts slowly with water forming hydrated compounds, releasing heat and a strongly alkaline solution.

10.2 Chemical Stability:

Stable at normal ambient and anticipated storage and handling conditions.

10.3 Possibility of Hazardous Reactions:

Aqueous solutions are highly alkaline and may corrode aluminum.

10.4 Conditions to Avoid:

Avoid unintentional contact with water / moisture and with strong acids and other incompatible materials.

10.5 Incompatible Materials:

Strong acids - Incompatible with strong acids; may react vigorously releasing heat and gases.

Water - reaction generates heat.

Aluminum – Aluminum powder and other alkali earth elements will react in the presence of water liberating extremely flammable hydrogen gas.

Calcium oxide is corrosive to aluminum metal.

Fluoride compounds – cement dissolves in HF producing corrosive silicon tetrafluoride gas.

Reacts with Ammonium salts

10.6 Hazardous Decomposition Products:

In contact with water and moisture, generates corrosive calcium hydroxide.

Section 11: Toxicological Information

11.1 Likely routes of exposure:

Eye and Skin contact, Inhalation of dust.

11.2 Acute toxicity :

Inhalation: Data not available for the mixture. Component substances are not classified in any category of acute toxicity hazard.

Ingestion: Data not available for the mixture. Component substances are not classified in any category of acute toxicity hazard.

Skin: Data not available for the mixture. Component substances are not classified in any category of acute toxicity hazard.

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11.2 Acute toxicity :

Skin corrosion / irritation:

Information for Portland Cement and Calcium oxide from human experience: Causes caustic burns when in prolonged contact with the skin.
Irritating or corrosive to mouth, throat and gastro-intestinal tract.

Serious eye damage / irritation:

Information for Portland Cement and Calcium oxide: Causes serious eye damage and possible blindness. Damage may be permanent if treatment is not immediate.

STOT (Specific Target Organ Toxicity) Single Exposure:

Breathing dusts causes respiratory irritation. May be corrosive to the respiratory tract. Inflammation of the respiratory passages, ulceration and perforation of the nasal septum and pneumonia has been attributed to the inhalation of dust containing calcium oxide.

Aspiration hazard:

This material is corrosive; if aspiration into the lungs occurs during vomiting, severe lung damage may result.

11.3 Chronic toxicity:

STOT (Specific Target Organ Toxicity) Repeated Exposure:

Prolonged and repeated breathing of dust may cause lung disease. The extent and severity of lung injury correlates with the length of exposure and dust concentration. Inflammation of the respiratory passages, ulceration and perforation of the nasal septum and pneumonia has been attributed to the inhalation of dust containing calcium oxide.

Contains crystalline silica.

Repeated exposures to particles containing Crystalline silica can cause lung disease (silicosis).

Silicosis is characterized by lung lesions.

Symptoms of silicosis include shortness of breath and cough, decreased lung function and weakness.

There is evidence of kidney disease in humans following occupational exposures to Crystalline silica.

In workers exposed to airborne crystalline silica there was an increase in occurrence of kidney disease.

There is evidence of auto-immune disorders in workers exposed to Crystalline silica.

Scleroderma (a disease involving thickening of the skin), lupus, rheumatoid arthritis, auto-immune hemolytic anemia and connective tissue disorders have been reported.

Respiratory and / or skin sensitization:

Product may contain trace concentrations of Chromate and Nickel compounds that can cause an allergic skin reaction, allergic contact dermatitis, or ACD. Once sensitized, brief skin contact with very small amounts of Cr VI may result in inflammation, rash, itching or severe skin ulcers. ACD is long-lasting and employees can remain sensitized to Chromium VI for many years.

Not known to be a respiratory sensitizer.

Germ cell mutagenicity:

Data not available.

Reproductive effects:

Data not available.

Developmental effects:

Data not available.

Effects on or via lactation:

Data not available.

Carcinogenicity:

Portland cement is not classifiable as a human carcinogen.

Crystalline silica :

IARC - Crystalline silica in the form of quartz or cristobalite from occupational sources should be classified as carcinogenic to humans (Group 1).

ACGIH® - in the form of quartz or cristobalite as A2: Suspected human carcinogen.

NTP - Crystalline silica, respirable size, is listed in the Report on Carcinogens by NTP (National Toxicology Program) as Known to be a human carcinogen.

Interactions with other chemicals:

Smoking may impair the ability of the lungs to remove inhaled dust.

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Section 12: Ecological Information

12.1 Toxicity:

Data not available.
Harmful to aquatic life. Contact with water forms an alkaline solution. Avoid release to the environment.

12.2 Persistence and degradability:

Not readily biodegradable

12.3 Bioaccumulative potential:

Not available

12.4 Mobility in soil:

Not available

Section 13: Disposal Considerations

13.1 Disposal methods:

Dispose as an inert, non-metallic mineral in accordance with applicable federal, state/provincial and local regulations.
Avoid generating dust during disposal.
Avoid contact with skin and eyes.
See Section 8 for personal protection measures.
Prevent material from entering sewers, drains, ditches or waterways.

Section 14: Transport Information

14.1 UN Number

Cement is not covered by international road and rail transport regulations (IMDG, UN Model Regulations).

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not available

14.6 Special precautions for user

Not available

14.7 U.S. Hazardous Materials Regulation (DOT 49CFR):

Not regulated except for transport by aircraft.

14.8 Canada Transportation of Dangerous Goods (TDG) Regulations:

Not regulated except for transport by aircraft.

Section 15: Regulatory Information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

USA

TSCA Status: Substances are listed on the TSCA inventory or are exempt.

Canada

NSNR Status: Substances are listed on the DSL or are exempt.

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Section 16: Other Information

Revision date:

June 12, 2020

References and sources for data:

CHEMINFO database. Canadian Centre for Occupational Health and Safety (CCOHS).
HSDB® database. US National Library of Medicine.
NIOSH Pocket Guide database. National Institute for Occupational Safety and Health.
Registry of Toxic Effects of Chemical Substances (RTECS®) database.

Methods for classification of mixtures:

USA: Haz Com Standard 29 CFR 1910.1200 (2012)
Canada: Controlled Products Regulations (WHMIS 2015).
UNECE, Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Legend to abbreviations:

ACGIH® – American Conference of Governmental Industrial Hygienists
GHS- Globally Harmonized System for Classification and Labeling.
IDLH – Immediately Dangerous to Life or Health Concentration
NIOSH – National Institute for Occupational Safety and Health
OSHA - Occupational Safety and Health Administration
REL – Recommended exposure limit
TWA – Time weighted average
TLV® - Threshold Limit Value
WHMIS – Workplace Hazardous Materials Information System.

Additional information:

While the information provided in this document is believed to provide a useful summary of the hazards of Portland cement, the information in this document cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. The data furnished in this document do not address hazards that may be posed by other materials when mixed with Portland cement. Users should review other relevant safety data sheets before working with this product. The information presented in the Safety Data Sheet is based on current knowledge and publications and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not be interpreted as guaranteeing any specific property of the product.

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