



MATERIAL SAFETY DATA SHEET

Material: Portland Cement

Approved by	W. Galloway	Senior Vice President	Date of Revision	01.January 2014	Page 1 of 5
-------------	-------------	-----------------------	------------------	-----------------	-------------

Control Number XA.11.101

Section I - Identification

Supplier Name: Holcim (Canada) Inc. Address: 2300 Steeles Ave. W. 4 th floor Concord, Ontario, L4K 5X6 Telephone: 905-761-7100	Emergency Information Contact: (CANUTEC) Telephone: (613) 996-6666 Note: The CANUTEC number is to be used only in the event of chemical emergencies involving a spill, fire, exposure or accident involving chemicals.
WHMIS Classification: D2A, E	Material Uses: The Portland cement is the binding ingredient in most concrete mixes. Concrete is widely used as a building material for structures and pavements.
Product Codes: Portland Cement: CSA A 3001 Type GU, MS, MH, HE, LH, HS. ASTM C 150 Type I, II, III, IV, V. Portland White Cement. This MSDS covers many products. Individual constituents will vary.	Formula: This product consists of finely ground Portland cement clinker mixed with a small amount of calcium sulfate (gypsum).
Chemical Family: Calcium compounds. Calcium silicate components and other calcium compounds containing iron and aluminum make up the majority of this product.	Chemical Name and Synonyms: Portland cement. Portland cement is also known as hydraulic cement.

Section II – Components

Hazardous Ingredients

Component	CAS #	% by Weight	OSHA PEL (mg/m ³)	ACGIH TLV-TWA (mg/m ³)
Portland Cement	65997-15-1	100	15 (T) ; 5 (R)	1 (R) (E)
Calcium Sulphate	7778-18-9	3 – 7	15 (T) ; 5 (R)	10 (I)
Calcium Oxide	1305-78-8	0 – 2	5	2
Calcium Carbonate	1317-65-3	0 – 5	15 (T) ; 5 (R)	TLV [®] withdrawn
Crystalline Silica	14808-60-7	< 0.2	[(10) / (% SiO ₂ + 2)] (R) [(30) / (% SiO ₂ + 2)] (T)	0.025 (R)

(T) = Total Dust ; (I) = Inhalable Fraction; (R) = Respirable Fraction; (E) = Particulate matter containing no asbestos and < 1% crystalline silica

Trace constituents: Portland cement has a variable composition depending upon the cementitious products produced in the cement kiln. Small amounts of naturally occurring, but potentially harmful, chemical compounds might be detected during chemical analysis. These trace compounds might include free crystalline silica, potassium and sodium compounds; heavy metals including cadmium, chromium, nickel and lead; and organic compounds. Other trace constituents may include calcium oxide (also known as free lime or quick lime).

Section III – Hazards Identification

Emergency Overview

Portland cement is a light gray powder that poses little immediate hazard. A single short-term exposure to the dry powder is not likely to cause serious harm. However, exposure to wet portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns or an allergic reaction. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry portland cement.



MATERIAL SAFETY DATA SHEET

Material: Portland Cement

Approved by	W. Galloway	Senior Vice President	Date of Revision	01.January 2014	Page 2 of 5
-------------	-------------	-----------------------	------------------	-----------------	-------------

Control Number XA.11.101

Potential Health Effects

- *Relevant Routes of Exposure:* Eye contact, skin contact, inhalation, and ingestion
- *Effects resulting from eye contact:* Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with larger amounts of dry powder or splashes of wet Portland cement may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see section IV) and medical attention to prevent significant damage to the eye.
- *Effects resulting from skin contact:* Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred. Exposure to dry Portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry portland cement contacting wet skin or exposure to moist or wet portland cement may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns. Some individuals may exhibit an allergic response (e.g., allergic contact dermatitis) upon exposure to portland cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with the product. Other persons may experience this effect after years of contact with portland cement products.
- *Effects resulting from inhalation:* Portland cement contains small amounts of free crystalline silica. Prolonged exposure to respirable free crystalline silica can aggravate other lung conditions and cause silicosis, a disabling and potentially fatal lung disease and/or other diseases. Risk of injury or disease depends on duration and degree of exposure. (Also see "Carcinogenic potential" below.) Exposure to Portland cement may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.
- *Effects resulting from ingestion:* Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. Portland cement should not be eaten.
- *Carcinogenic potential:* NTP, OSHA, or IARC has not listed Portland cement as a carcinogen. It may, however, contain trace amounts of substances listed as carcinogens by these organizations. Crystalline silica, which is present in Portland cement in small amounts, has been listed by IARC and NTP as a known human carcinogen (Group I) through inhalation. Hexavalent chromium is listed by IARC, EPA, NTP and OSHA as Group I known carcinogen by inhalation.
- *Medical conditions which may be aggravated by inhalation or dermal exposure:*
 - Pre-existing upper respiratory and lung diseases
 - Unusual (hyper) sensitivity to hexavalent chromium (chromium₊₆) salts.

Section IV – First Aid

Eyes: Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent. Seek medical treatment in all cases of prolonged exposure to wet cement, wet cement mixtures, wet concrete liquids from fresh cement products, or prolonged wet skin exposure to dry cement.

Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing or other symptoms do not subside. (Inhalation of gross amounts of portland cement requires immediate medical attention.)

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

Section V – Fire & Explosion Data

Flash Point:	<i>Not Combustible</i>	Auto Ignition Temperature:	<i>Not Combustible</i>
Lower Explosive Limit:	<i>None</i>	Upper Explosive Limit:	<i>None</i>
Extinguishing Media:	<i>Not Combustible</i>	Unusual Fire and Explosion Hazards:	<i>None</i>
Hazardous Combustion Products:	<i>None</i>		
Special Fire Fighting Procedures:	None. (Although portland cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.)		



MATERIAL SAFETY DATA SHEET

Material: Portland Cement

Approved by W. Galloway Senior Vice President Date of Revision 01.January 2014 Page 3 of 5

Control Number XA.11.101

Section VI – Accidental Release Measures

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protective equipment as described in Section VIII.

Scrape up wet material and place in an appropriate container. Allow the material to “dry” before disposal. Do not attempt to wash Portland cement down drains.

Dispose of waste material according to local, state, and federal regulations.

Section VII – Handling & Storage

Keep portland cement dry until used. Normal temperatures and pressures do not affect the material. Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures or fluids.

Section VIII – Exposure Control/Personal Protection

Skin Protection: Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened wet portland cement products. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened portland cement products might occur, wear impervious clothing and gloves to prevent skin contact. Where required, wear sturdy boots that are impervious to water to eliminate foot and ankle exposure. Do not rely on barrier creams; barrier creams should not be used in place of impervious gloves and clothing. Periodically wash areas contacted by dry portland cement or wet cement or concrete with a pH neutral soap. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean, dry clothing.

Respiratory protection: Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures below applicable exposure limits. Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation. (Advisory: Respirators and filters purchased after July 10, 1998, must be certified under 42 CFR 84.)

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

Eye Protection: In conditions where user may be exposed to splashes or puffs of cement, wear safety glasses with side shields or goggles. In extremely dusty or unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with portland cement or fresh cement products.

Section IX – Physical & Chemical Properties

Appearance:	Grey or White Powder	Vapour Pressure:	Not Applicable
Odour:	No Distinct Odour	Vapour Density:	Not Applicable
Physical State:	Solid (Powder)	Boiling Point:	Not Applicable
pH (in water):	12 - 13	Melting Point:	Not Applicable (i.e. > 1000 °C)
Solubility in Water:	Slightly Soluble (0.1 to 1.0%)	Specific Gravity (H ₂ O = 1)	3.15
Evaporation Rate:	Not Applicable		

Section X – Stability & Reactivity

Stability:	Stable
Incompatibility:	Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts, and aluminum metal.
Conditions to Avoid:	Unintentional contact with water.
Hazardous Decomposition:	Will not spontaneously occur. Adding water produces (caustic) calcium hydroxide as a result of hydration
Hazardous Polymerisation:	Will not occur.



MATERIAL SAFETY DATA SHEET

Material: **Portland Cement**

Approved by	W. Galloway	Senior Vice President	Date of Revision	01.January 2014	Page 4 of 5
-------------	-------------	-----------------------	------------------	-----------------	-------------

Control Number XA.11.101

Section XI – Toxicological Information

For a description of available, more detailed toxicological information, contact Holcim (Canada) Inc. (Contact Details in Section I).

Section XII – Ecological Information

Ecotoxicity: *No recognized unusual toxicity to plants or animals*
Relevant Physical & Chemical Properties: *See Sections IX & X*

Dispose of waste material according to local, state, and federal regulations. (Since portland cement is stable, uncontaminated material may be saved for future use.) Dispose of bags in an approved landfill or incinerator.

Hazardous Materials Description/Proper Shipping Name: *Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations and Canadian Transportation of Dangerous Goods (TDG) Regulation*

Hazard class: *Not applicable*

Identification class: *Not applicable*

Required label text: *Not applicable*

Hazardous substances/reportable quantities (RQ): *Not applicable*

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200: *Portland cement is considered a hazardous chemical under this regulation, and should be part of any hazard communication program.*

Status under CERCLA/Superfund, 40 CRF 117 and 302: *Not listed.*

Hazard Category under SARA (Title III), Sections 311 and 312: *Portland cement qualifies as hazardous substance with delayed health effects under Sections 311 and 312.*

Status under SARA (Title III), Section 313: *Not subject to reporting requirements under Section 313.*

Status under TSCA (as of May 1997): *Some substances in Portland cement are on the TSCA inventory list.*

Status under the Federal Hazardous Substances Act: *Portland cement is a hazardous substance subject to statutes promulgated under the subject act.*

Status under California Proposition 65: *This product contains chemicals (trace metals) known to the State of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist.*

Status under Canadian Environmental Protection Act: *Not listed.*

Status under Workplace Hazardous Materials Information System (WHMIS): *Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class D2A – Chronic Toxic*



MATERIAL SAFETY DATA SHEET

Material: **Portland Cement**

Approved by	W. Galloway	Senior Vice President	Date of Revision	01.January 2014	Page 5 of 5
-------------	-------------	-----------------------	------------------	-----------------	-------------

Control Number XA.11.101

Effect and Class E – Corrosive Material) and is therefore subject to the labelling and MSDS requirements of WHMIS.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR

Portland cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that Portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is setting) pose a far more severe hazard than does Portland cement itself.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of Portland cement as it is commonly used, this sheet 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.

In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with Portland cement to produce Portland cement products. Users should review other relevant material safety data sheets before working with this Portland cement or working on Portland cement products, for example, Portland cement concrete.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OF THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY HOLCIM (CANADA), EXCEPT THAT THE PRODUCT SHALL CONFORM TO CONTRACTED SPECIFICATIONS.

The information provided herein was believed by Holcim (Canada) Inc. to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as for product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise, shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.