

## MATERIAL SAFETY DATA SHEET

### SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product names: St. Marys Clinker Cement, St. Marys Portland Cement,  
 St. Marys Portland-Limestone Cement  
 CSA A3000 Types GU, MS, MH, HE, LH, HS, GUL, HEL, MHL, LHL  
 ASTM C150/AASHTO M85 Types I, IA, II, II-MH, I-II, III, IV, V

Chemical Name and Synonyms: Portland Cement, Clinker and Hydraulic Cement

Chemical Family: *Calcium Compounds*

#### WHMIS classification: D2A, E

Manufacturer: St. Marys Cement  
 55 Industrial Street  
 Toronto, ON M4G 3W9

Informational Telephone Number: 1-800-268-6148 (Canada)  
 1-800-462-9157 (Ext.537) (U.S.)

Emergency Telephone Number: 1-613-996-6666 CANUTEC (Call Collect or \*666 Cellular) (Canada)  
 1-800-462-9157 (U.S.)

#### General Information:

Portland Cement Clinker is a pyroprocessed-fused material consisting predominately of crystalline hydraulic calcium silicates and is the precursor to finely divided Portland cement upon grinding/pulverizing.

Portland cement is the binding ingredient used in concrete mixes with or without other binders. Concrete is widely used as a building material for structure and pavements.

### SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS #	Percent (By Weight)	OSHA-PEL, TWA (mg/m <sup>3</sup> )	ACGIH-TLV, TWA (mg/m <sup>3</sup> )
Portland Cement	65997-15-1	100	15 (T); 5 (R)	1 (R)
Calcium Oxide	1305-78-8	1-5	5	2
Crystalline Silica	14808-60-7	0.1-1	(10 ÷ [%SiO <sub>2</sub> + 2])*	0.025 (R)
Chromates	7440-47-3	Trace	0.1(CrO <sub>3</sub> )	0.01(Cr)

(T) = Total Dust; (R) = Respirable Fraction

\* 29CFR 1910.1000 Table Z-3 Mineral Dusts

Additionally, trace amounts of nickel compounds may be present.

## SECTION 3 - HAZARDS IDENTIFICATION

### Emergency Overview

Portland cement products are corrosive. Exposure to wet or dry material can cause serious, potentially irreversible tissue damage from chemical burns, particularly to the eyes.

### 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 by larger amounts of dry powder or splashes of wet Portland cement products may cause effects ranging from moderate eye irritation to chemical burns and blindness, requiring immediate first aid (see Section 4) and medical attention.

#### 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, and significant injury has occurred.

Exposure to dry cement products may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Skin contact with wet or dry cement products may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged skin contact can cause severe chemical burns.

Some ultra-sensitive individuals may exhibit an allergic response upon exposure to cement products, possibly due to trace amounts of chromium (hexavalent chromium salts). The response may appear in a variety of forms ranging from mild rash to severe skin ulcers. Persons already sensitized might react to their first contact with the product; others might experience this effect only after years of contact with cement products.

#### Effects Resulting from Inhalation

Exposure to Portland cement products may cause irritation to the moist membranes of the nose, throat, and upper respiratory system. Inhalation may also aggravate pre-existing upper respiratory and lung diseases. It may also leave unpleasant deposits in the nose.

Portland cement products may contain trace amounts of free crystalline silica. Prolonged exposure to respirable free crystalline silica may aggravate other lung conditions. It also may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases.

#### Effects resulting from ingestion

Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are accidentally consumed.

Carcinogenic Potential: See Section 11.

**Engulfment hazard**

Cement can build up or adhere to the walls of a confined space such as a silo, bin, bulk truck, or other container or vessel. The material can be detached, collapse or fall unexpectedly. To prevent burial or suffocation, do NOT enter a confined space without precautions appropriate to Confined Spaces.

**SECTION 4 - FIRST AID****Eyes:**

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

**Skin:**

Wash skin with cool water and mild soap or a detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to cement products.

**Inhalation of Airborne Dust:**

Remove to fresh air. Seek medical help if coughing and 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 5 - FIRE & EXPLOSION DATA**

Flash Point .....	None
Lower Explosive Limit .....	None
Upper Explosive Limit.....	None
Auto Ignition Temperature .....	Not Combustible
Extinguishing Media .....	Not Combustible
Special Fire Fighting Procedures .....	None

*Although Portland cement products pose no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.*

Hazardous Combustion Products .....	None
Unusual Fire and Explosion Hazards.....	None

**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

Collect dry material in an appropriate container and minimize dust. Wear appropriate personal protective equipment as described in Section 8.

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, provincial and federal regulations (see Section 13).

**SECTION 7 - HANDLING AND STORAGE**

Keep Portland cement products dry until used. Normal temperatures do not affect the material.

Static Hazard: Properly ground all pneumatic conveyance systems. The potential exists for static build-up and 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 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

### Eye Protection:

Wear ANSI- or CSA-approved safety glasses with side shields or goggles. Provide emergency eyewash stations. In extremely dusty environments and unpredictable environments wear un-vented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Portland cement products.

### Skin Protection:

Prevention is essential to avoiding potentially severe skin injury. Avoid contact with cement products. If contact occurs, promptly wash affected area with soap and water. In case of severe contact, provide emergency showers. Clothing saturated with wet concrete products should be promptly removed and replaced with clean dry clothing. Where prolonged exposure to cement products might occur, wear impervious clothing and cut/abrasion-resistant (Heavyweight Nitrile coated Safety cuff) gloves to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure.

Do not rely solely on barrier creams in place of gloves.

### Respiratory Protection:

Avoid actions that cause dust to become airborne.

Use NIOSH-approved respirators (N95 rating or greater) for dust, if an applicable exposure limit is exceeded or when dust levels cause discomfort or irritation.

### Ventilation:

Use local exhaust where practicable, or general dilution ventilation to control exposure within applicable limits.

## SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance .....	Gray or white
Odour .....	No distinct odour
Physical State .....	Solid; pebble or powder
pH in water (ASTM D 1293-95).....	12 to 13
Solubility in Water .....	Slightly Soluble (0.1 to 1.0%)
Vapour Pressure .....	Not Applicable
Vapour Density .....	Not Applicable
Boiling Point .....	Not Applicable (i.e. > 1000°C)
Melting Point .....	Not Applicable
Specific Gravity (H <sub>2</sub> O = 1.0) .....	3.15
Evaporation Rate.....	Not Applicable

**SECTION 10 - STABILITY AND REACTIVITY**

Stability: Stable, except in the presence of moisture.

Conditions to Avoid: Unintentional contact with water.

Incompatibility:

Wet Portland cement is alkaline and is incompatible with acids, ammonium salts and aluminum metal.

Hazardous Decomposition:

Will not spontaneously occur. Adding water produces (caustic) calcium hydroxide.

Hazardous Polymerization: Will not occur.

**SECTION 11 - TOXICOLOGICAL INFORMATION**

Calcium oxide: Corrosive to living tissue.

Crystalline silica

Acute Toxicity: Not acutely toxic.

Chronic Toxicity: Respirable crystalline silica is the chief cause of pulmonary dust disease. Prolonged inhalation of crystalline silica can result in silicosis, a disabling pulmonary fibrosis characterized by generalized fibrotic changes, the development of miliary nodules in both lungs, and clinically by shortness of breath on exertion, decreased chest expansion, lessened capacity for work, dry cough, absence of fever, increased susceptibility to tuberculosis, and characteristic x-ray findings of diffuse discrete nodulation scattered throughout both lung fields. In advanced stages, silicosis can include marked fatigue, extreme dyspnea and cyanosis, loss of appetite, pleuritic pain and total incapacity to work. The disease can result in death either from cardiac failure or from destruction of lung tissue, with resultant anoxemia.

Crystalline silica, a trace contaminant in Portland Cement, is classified as a carcinogen: International Agency for Research on Cancer (IARC) Group 1 “known to be carcinogenic to humans”; ACGIH Group 2A “suspected human carcinogen” (limited evidence of carcinogenicity in humans and sufficient evidence in experimental animals with relevance to humans); NTP indicates that crystalline silica is reasonably anticipated to be a carcinogen (Group 2).

Chromates and Nickel Compounds

Cement products may contain trace amounts of hexavalent chromium and nickel compounds. Soluble chromates in cement have been stated to be the cause of cement dermatitis in some workers. Inorganic nickel compounds – pure or in trace amounts – are not absorbed through the skin in amounts sufficient to cause systemic intoxication. However, their capability to cause contact dermatitis in sensitized individuals is well known.

**SECTION 12 - ECOLOGICAL INFORMATION**

Ecotoxicity:

No recognized unusual toxicity to plants or animals.

**SECTION 13 - DISPOSAL**

Dispose of, or recycle, material and containers. Material may generally be disposed to landfill after confirmation of suitability according to provincial (state) or local and federal regulations through leachate testing. Since Portland cement products are stable, uncontaminated material may be saved for future use.

Dispose of bags in an approved landfill or incinerator.

**SECTION 14 - TRANSPORTATION DATA**

Hazardous Material Description/Proper Shipping Name:

Portland cement products are not hazardous under U.S. Department of Transportation (DOT) or Canadian Transportation of Dangerous Goods (TDG) regulations.

Hazard Class: Not applicable.

Identification Number: Not applicable.

Required Label Text: Not applicable.

Hazardous Substances/Reportable Quantities: Not applicable.

**SECTION 15 - OTHER REGULATORY INFORMATION**

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200:

Portland cement products are considered hazardous chemicals under this regulation, and should be part of any hazard communication program.

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

Hazard Category under SARA (Title III), Sections 311 and 312:

Portland cement products qualify 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 products are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act:

Portland cement products are hazardous substances 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 the Canadian Environmental Protection Act: Not listed.

Status under the Canadian Workplace Hazardous Materials Information System (WHMIS):

Portland cement products are considered to be a hazardous materials under the *Hazardous Products Act* as defined by the *Controlled Products Regulations* (CPR) These products have been classified in

accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

## **SECTION 16 - OTHER INFORMATION**

Revision date: September 2013

Prepared by: IHEAS Inc. (Tel. 519-657-5105)

Date of previous MSDS: September 2010

Portland cement products should only be used by trained, knowledgeable persons.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of cement products as commonly used, this sheet cannot anticipate and provide all of the information that might be needed in every situation.

In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with cement products.

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