St Marys Cement
55 Industrial Street
Toronto, Ontario
M4G 3W9
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MATERIAL SAFETY DATA SHEET

St. Marys Portland Cement Date Prepared: November 2001 **(Revised: September 2007)**

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Chemical Name and Synonyms: Portland Cement and Hydraulic Cement CAS #65997-15-1
Chemical Family: *Calcium Compounds*
Product names: St. Marys Portland Cement
CSA A3000 Types 10, 20, 30, 40, 50, GU, MS, MH, HE, LH, HS
ASTM C150/AASHTO M85 Types I, IA, II, I-II, III, IV, V

Note:
As this MSDS covers all St. Marys Portland cement, composition of individual products may vary with regard to hazardous constituents.

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.568) (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 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.

Composition/Information on Ingredients
Product: Portland Cement CAS #65997-15-1

Major ingredients are:

Component	**CAS Number**	**Formula**	**Percent (%)**
Tricalcium Silicate	12168-85-3	$3CaOSiO_2$	20-80
Dicalcium Silicate	10034-77-2	$2CaOSiO_2$	0-50
Tetracalcium Aluminoferrite	12068-35-8	$4CaOAl_2O_3Fe_2O_3$	0-20
Tri-Calcium Aluminate	12042-78-3	$3CaOAl_2O_3$	0-15
Calcium Sulphate Dihydrate	13397-24-5	$CaSO_42H_2O$	0-10
Calcium Carbonate	1317-65-3	$CaCO_3$	0-5
Magnesium Oxide	1309-48-4	MgO	0-6
Calcium Oxide	1305-78-8	CaO	0-4
Crystalline Silica	14808-60-7	SiO_2	0-0.75

Additionally, trace amounts of potassium and sodium compounds, chromium compounds, and nickel compounds may be present.

SECTION 2 - HAZARDOUS INGREDIENTS

Exposure Limits:

	OSHA TWA	ACGIH TVL TWA
Portland Cement CAS #65997-15-1		
Up to 95% by weight		
Respirable Dust	5mg/m^3	
Total Dust	15mg/m^3	10mg/m^3
Calcium Sulphate Dihydrate CAS #13397-24-5		
Up to 10% by weight		
Respirable Dust	5mg/m^3	
Total Dust	15mg/m^3	10mg/m^3
Calcium Carbonate CAS #1317-65-3		
Up to 5% by weight		
Respirable Dust	5mg/m^3	
Total Dust	15mg/m^3	10mg/m^3
Crystalline Silica CAS #14808-60-7		
Up to 0.75% by weight		
Respirable Dust	0.1mg/m^3	0.1mg/m^3
Magnesium Oxide CAS #1309-48-4	10mg/m^3	10mg/m^3
Calcium Oxide CAS #1306-78-8	5mg/m^3	2mg/m^3
Nuisance Dust		
Respirable Dust	5mg/m^3	5mg/m^3
Total Dust	15mg/m^3	10mg/m^3
Chromates	.01mg(CrO_3)/m^3	.5mg(Cr)/m^3

Trace Elements

As Portland cement is made from materials mined from the earth and is processed using energy provided by fuels, trace amounts of naturally occurring, potentially harmful chemicals might show up during chemical analysis. For example, these products may contain up to 25% of insoluble residue, some of which may be crystalline silica. Other trace components may include potassium and sodium sulphate compounds, chromium compounds and nickel compounds.

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview

Portland cement is a light grey powder that poses little immediate hazard. A single short-term exposure to the dry powder is not likely to cause serious harm. However, exposure of sufficient duration to wet Portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns. 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.

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 may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see Section 4) 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 have 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 upon exposure to Portland cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may first experience this effect after years of contact with Portland cement products.

Effects Resulting from Inhalation:

Portland cement 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. Also see Carcinogenic Potential below.

Exposure to Portland cement may cause irritation to the moist 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:

International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP), or Occupational Safety and Health Administration (OSHA) do not list Portland cement as a carcinogen.

IRAC has designated Crystalline silica, a potential trace contaminant in Portland cement as carcinogenic to humans (Group 1). The NTP indicates that Crystalline silica is reasonably anticipated to be a carcinogen (Group 2).

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 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 pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet cement, cement mixtures, 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 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 poses 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 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 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 and federal regulations.

SECTION 7 - HANDLING AND 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 8 - EXPOSURE CONTROLS/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 eliminate skin contact. Where required, wear 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 gloves.

Periodically wash areas contacted by dry Portland cement, by wet cement, or by concrete fluids 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 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:

When engaged in activities where cement dust or wet cement or concrete could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and 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 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Grey or White Powder
Odour	No Distinct Odour
Physical State	Solid (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_2O = 1.0)	3.15
Evaporation Rate	Not Applicable

SECTION 10 - STABILITY AND REACTIVITY

Stability:

Stable.

Conditions to Avoid:

Unintentional contact with water.

Incompatibility:

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

Hazardous Decomposition:

Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.

Hazardous Polymerization:

Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

For a description of available, more detailed toxicological information, contact the supplier or manufacturer.

SECTION 12 - ECOLOGICAL INFORMATION

Ecotoxicity:

No recognized unusual toxicity to plants or animals.

Relevant Physical and Chemical Properties:

See Sections 9 and 10.

SECTION 13 - DISPOSAL

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.

SECTION 14 - TRANSPORTATION DATA

Hazardous Material Description/Proper Shipping Name:

Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard Class:

Not applicable.

Identification Number:

Not applicable.

Required Label Text:

Not applicable.

Hazardous Substances/Reportable Quantities (RO):

Not applicable.

SECTION 15 - OTHER REGULATORY INFORMATION

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

SECTION 16 - OTHER INFORMATION

Revision date: September 2007
Date of previous MSDS: October 2004

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.

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