

MATERIAL SAFETY DATA SHEET - PORTLAND CONCRETE CEMENT

Section I-

MATERIAL IDENTIFICATION AND USE

Material Name: Portland Cement Concrete

Manufacture: Municipal Ready-Mix LTD
Address: P.O Box 237, Sydney
N.S, B1P 6H1
Ph: 564-4541 Fax: 562-6057

Supplier : Municipal Ready-Mix LTD
Address: P.O Box 237, Sydney
N.S, B1P 6H1
Ph: 564-4541 Fax: 562-6057

Chemical name: Not applicable

Chemical family: Portland cement product

Chemical formula: Mixture of cementitious material, aggregates and water

Trade names & synonyms: Ready-Mixed Concrete; Concrete

Molecular weight: Not applicable

Material use: Construction materials

Section II

HAZARDOUS INGREDIENTS OF MATERIALS

Concrete is a mixture of inert gravel or rock, sand, Portland cement and water. It may also contain chemical admixtures, and / or flyash, and/or granulated slag, and/or silica fume, which have no effect on the hazards associated with the use of the product. The chemical admixtures are present in quantities comprising less than 1% of the material.

<u>Hazardous Ingredients</u>	<u>%</u>
Portland Cement (CAS 65997-15-1)	10 - 20
Quartz(SiO ₂) (CAS 14808.60.7)	3 - 7
Portlandite (Ca(OH) ₂) (CAS 1305-62-0)	2-4

The Hazardous ingredients in plastic (wet) concrete cannot become airborne. However, water added to the materials reacts with some of the ingredients to form calcium hydroxide, a corrosive chemical, which will irritate the eyes and skin upon contact. Concrete dust from dried Portland cement concrete may also contain hazardous ingredients in sufficient concentrations to cause skin, eye, or respiratory irritation.

Section III

PHYSICAL DATA FOR MATERIAL

Physical state: Plastic until it becomes solid upon setting
Odor & Appearance: Odorless, grey, plastic, flowable and granular
Odor Threshold: None
Specific Gravity: Normal range 1.5 to 2.8
Vapor Pressure: Not applicable
Vapor Density: Not applicable
Evaporation Rate: Not applicable
Boiling Point: Not applicable
Freezing Point: 0 deg Celsius
Solubility in water: 0.1%
Ph: pH12 - pH13

Section IV

FIRE AND EXPLOSION HAZARD OF MATERIAL

Not applicable

Section V

REACTIVITY DATA

Not Applicable

Section VI

TOXICOLOGICAL PROPERTIES OF MATERIALS

(A) Plastic Concrete

Toxicological Properties: Plastic concrete has an alkalinity level of pH12 to pH13, which can cause skin and eye irritation.

Route of Entry: skin contact, eye contact, and ingestion

Effects of acute exposure: plastic concrete can cause alkali burns, eye irritations and burns. Ingestion may cause irritation of the throat

Effects of chronic exposure: damage to the epidermis and derma (outer layers of skin)

(B) Hardened or "Set" Concrete

Sawing or other demolition techniques may result in exposure to dust, which may cause hazardous ingredients of the constituent products as follows:

(1) Portland Cement and Portlandite

Toxicological Properties: The hazardous ingredients when in contact with water, produce calcium hydroxide, with an alkalinity level pH12 to pH13. This level of alkalinity can cause skin and eye irritation.

Route Of Entry: Skin contact, eye contact, inhalation, and ingestion

Effects of Acute Exposure: Cement and wet cement mixtures can dry skin, cause alkali burns and irritate the eyes and upper respiratory tract. Ingestion can cause inflammation of the throat.

Effects of Chronic Exposure: Cement dust can cause inflammation of tissue lining the interior of nose, and the cornea (white) of the eye. Hyper -sensitive people may develop allergic dermatitis.

Exposure Limits:

O.Reg.654/86(8hr TWAEV)*	10 mg/m ³ (total dust)
ACGIH (TLV-8hr TWA)	10mg/m ³ (total dust)
MSHA (8hr-TWA)	60 mppcf**
OSHA (PEL 8hr TWA)	50 mppcf

* Time weighed average exposure value (8hr day-40-hr wk)
** Million particles per cubic foot

Portland cement and Portlandite are not known to constitute a carcinogenic, reproductive, teratogenic, or mutagenic hazards.

(II) Quartz (SiO₂)

Route of Entry : Skin contact, eye contact, and inhalation chronic

Effects of Acute Exposure of Materials: Exposure to dust may irritate respiratory system, eyes and skin.

Effects of Chronic Exposure:

- (1) Chronic exposure to respirable dust at levels exceeding exposure limits has caused pneumoconiosis.
- (2) Chronic exposure to respirable sand and gravel dust containing quartz at levels exceeding exposure limits has caused silicosis, a serious and progressive pneumoconiosis that can be disabling, and in extreme instances lead to death. Symptoms may appear at any time, even years after exposure has ceased. Symptoms of silicosis may include shortness of breath, difficulty in breathing, coughing, diminished work capacity, diminished chest expansion, reduction of lung volume and heart enlargement and/or failure. The only reliable method of detecting silicosis is through a chest x-ray. Silicosis may aggravate other chronic pulmonary conditions and may increase the risk of pulmonary tuberculosis infection. Smoking aggravates the effects of silica exposure.

LD50 of material (Species and Route): Not applicable
LC50 of material (Species and Route): Not applicable

Exposure Limits:

Respirable silica dust - 0.2 mg/metre³ (TWAEV - Time Weighted Average Exposure Values)
For additional information on the above exposure limits, consult Ontario Regulations 654/86 and 769/83, amended 23/87.

Irritancy of Material: Respiratory system, eyes, skin

Carcinogenic Potential: Respirable crystalline silica is classified by IARC as a known human carcinogen and by NTP as 'reasonably anticipated to be a carcinogen'. Crystalline silica in wet concrete is not respirable and does not pose a hazard when the concrete is in its plastic or unhardened state. Once concrete has hardened, airborne dust generated by grinding, sawing, drilling, breaking, etc. can lead to potentially hazardous exposures to workers..

prevent contact with eyes. Wear an approved respirator if exposed to dust from hardened concrete when sawing or using other demolition methods.

ENGINEERING CONTROLS: (specify) Provide ventilation when sawing or using other demolition techniques to maintain dust concentrations below exposure limits listed in Section VI.

LEAK AND SPILL PROCEDURE: Sweep and shovel into waste disposal containers. Flush with water hose for final cleanup of floors, walkways, etc.

WASTE DISPOSAL: At approved landfill and waste disposal site in accordance with local regulations.

HANDLING PROCEDURES/EQUIPMENT: As above

STORAGE REGULATIONS: Not applicable

SPECIAL SHIPPING INFORMATION: Not applicable

Section VII

FIRST AID MEASURES

Wash exposed areas of body with soap and water. Irrigate eyes with large amounts of water. Consult a physician in cases of severe exposure. In case of accidental ingestion, drink two or three glasses of milk, call a physician and do not induce vomiting.

Section IX

MSDS PREPARATION DATE

Prepared by: Canadian Ready-Mix Concrete Ass.
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Section VII-

PREVENTIVE MEASURES

PREVENTIVE EQUIPMENT: Use gloves, boots and clothing to prevent skin contact. Wear safety glasses and goggles to