

MATERIAL SAFETY DATA SHEET

SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Ready Mix Concrete, Pre-Mixed Concrete, Transit Mixed Concrete & Grout. MSDS covers all Concrete Mix Designs prepared by Lehigh Hanson Materials Limited (Canada Region)

CAS No: N/A

Product Use: Ready Mix Concrete is a structural component used in structural and civil engineering.

MSDS Information: This product is classified as hazardous, according to criteria of WHMIS regulations.

Product Code:

Chemical Family: N/A

Chemical Name And Synonyms: N/A

Formula: This product consists of portland cement, flyash, sand, aggregate, and ad mixtures, individual compositions of constituents will vary within the mix design ranges.

Supplier/Manufacturer: Various named companies operating as a division of Lehigh Hanson Materials Limited
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SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ready Mix Concrete Ingredients & Their Exposure Limits:

Current ACIH TLV for 8 hour Exposure

Chemical Entity/Ingredient	CAS No:	Percentage of Mix	Total Dust (Mass) mg/m ³	Respirable Dust (Mass) mg/m ³
Crushed stone or gravel		0 to 60	10 mg/m ³	5 mg/m ³
Sand		1 to 50	10 mg/m ³	5 mg/m ³
Portland Cement	65997-15-1	1 to 25	10 mg/m ³	5 mg/m ³
Water				
Fly Ash		1 to 25	10 mg/m ³	5 mg/m ³
Crystalline Silica	14808-60-7	0.01 to 5	2 mg/m ³	0.05 mg/m ³

Note:

Cements and sand and gravel may contain 0.1% - 60% crystalline silica (CAS No. 14808-60-7) depending on the proportion and crystalline silica content of the ingredients. All ingredients may contain crystalline silica. Wet stage poses no risk or hazard

SECTION 3 - HAZARDS IDENTIFICATION

Emergency Overview:

Concrete is a light gray fluid mixture that poses an immediate hazard to eye tissue. Exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns.

If footwear or clothing becomes saturated with wet concrete, remove immediately and wash area with water and mild soap. Do not allow prolonged contact.

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Potential Health Effects:

- **Relevant routes of exposure are:**
- EYE CONTACT and SKIN CONTACT

Effects Resulting From EYE CONTACT:

Exposure to wet concrete may cause immediate or delayed irritation or inflammation. Eye contact by splashes of wet concrete may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid 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 concrete. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred.

Exposure to moist or wet concrete may cause more severe skin effects including thickening, cracking, fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Effects Resulting From INHALATION:

Concrete may contain amounts of crystalline silica. Prolonged exposure to respirable free crystalline silica may aggravate other lung conditions. It may also cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (Also see "Carcinogenic Potential" below.)

Respirable exposure to silica in concrete may occur only if concrete is drilled, cut, ground or polished. Exposure to concrete dust may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. The dust may also leave unpleasant deposits in the nose.

Effects Resulting From INGESTION:

Not Applicable

- **Chronic Effects**

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 a 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.

- **Carcinogenic Potential**

Ready Mix Concrete is not listed as a carcinogen by NTP, OSHA, or IARC. It may, however, contain trace amounts of substances listed as carcinogens by those organizations.

Crystalline silica, a potential trace level contaminant in portland cement, is found in the aggregate components in varying percentages and is classified by IRAC as a known human carcinogen (Group 1). NTP has characterized respirable silica as "reasonably anticipated to be [a] carcinogen".

- **Medical Conditions That May Be Aggravated By Inhalation or Dermal Exposure:**

- ◇ Pre-existing upper respiratory and lung diseases.
- ◇ Previous exposure to dust from hardened product.
- ◇ Unusual or (hyper) sensitivity to hexavalent chromium (chromium (+6)) salts.

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SECTION 4 – FIRST AID MEASURES

- **Eyes**
Immediately flush eyes thoroughly with water. Continue flushing for 15 minutes, including under the lids, for at least 15 minutes. Seek medical attention immediately.
- **Skin**
Wash skin with water and pH neutral soap or mild detergent intended for use on skin. If clothing or footwear is saturated remove immediately and wash area with water and mild soap. If contact has been severe enough to cause reddening or actual burns to skin, place sterile bandage on area and seek medical attention.
- **Inhalation**
In wet form, concrete cannot be inhaled.
- **Ingestion**
In wet form, concrete is unlikely to be ingested. If concrete enters mouth, wash out with water immediately. Seek medical attention if any burning sensation or actual burns occur.

SECTION 5 – FIRE EXPLOSION DATA / FIRE FIGHTING MEASURES

Flammability:	Not Flammable.	Flash Point:	Not Applicable.
Lower Explosive Limit:	Not Applicable.	Upper Explosive Limit:	Not Applicable.
Auto ignition Temperature:	Not Applicable.	Sensitivity To Static Discharge:	Not Applicable.
Sensitivity To Impact:	Not Applicable.	Extinguishing Media:	Not Applicable.
Special Fire-Fighting Procedures:	None.	Hazardous Combustion Products:	Not Applicable.
Unusual Fire And Explosion Hazards:	Not Applicable.		

SECTION 6 – STABILITY AND REACTIVITY

Stability:	Stable
Incompatibility:	Portland cement reacts with water to produce a caustic solution, pH 12 to pH 13. Wet concrete is alkaline. As such it is incompatible with acids, ammonium salts, and aluminum metal. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Concrete dissolves in hydrofluoric acid producing corrosive silicon tetrafluoride gas. Silicates react with powerful oxidizers such as fluorine, chlorine, trifluorides, and oxygen difluoride.
Hazardous Decomposition:	Will not occur.
Hazardous Polymerization:	Will not occur.

SECTION 7 - HANDLING AND STORAGE

Normal temperatures and pressures do not affect the material.

Promptly remove dusty clothing or clothing which is wet with concrete fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures or fluids.

Ready Mix Concrete is premixed at a plant or in a truck mixer drum and delivered to the end user in semi-fluid state ready to be placed to set in final form.

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SECTION 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Eye Protection:

Safety glasses with side shields, or goggles, should be worn when engaged in activities where cement dust, wet cement, or concrete could contact the eye. 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 ready mix concrete or fresh concrete products.

Skin Protection:

Prevention is essential to avoid potentially severe skin injury. Avoid contact with unhardened (wet) concrete products. If contact occurs, promptly wash affected area with soap and water. Wear impervious clothing and gloves to eliminate skin contact where prolonged exposure to unhardened ready mix concrete products might occur. Wear boots that are impervious to water to eliminate foot and ankle exposure. If standing in wet concrete rubber boots must be worn to prevent injury.

Wet concrete may splash into open boot tops and saturate socks and remain in contact for a lengthy period of time. Prevention is to ensure that boots are fully laced up.

Do not rely on barrier creams; barrier creams should not be used in place of gloves.

Periodically wash areas in contact with dry portland cement, wet cement, or concrete fluids with a pH-neutral soap. Wash again at the end of workday. If irritation occurs, immediately wash the affected area and seek treatment. Clothing saturated with wet concrete should be removed immediately and replaced with clean, dry clothing. Do not allow clothing saturated with wet concrete to remain in contact with skin for any period of time.

Respiratory Protection:

Avoid actions that cause dust to become airborne. Use local or general ventilation to control exposures to below applicable exposure limits.

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84 after July 10, 1998) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation.

Ventilation:

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

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	gray fluid / hydraulic mixture	Odor:	No distinct odor.
Odor Threshold:	Not applicable.	Physical State:	Solid (powder).
pH (as a solid):	Not applicable.	pH:	12 to 13
Solubility In Water:	Not applicable.	Vapor Pressure:	Not applicable.
Vapor Density:	Not applicable.	Boiling Point:	Not applicable (i.e., >1000°C).
Freezing Point:	Not applicable.	Melting Point:	Not applicable.
Specific Gravity (H₂O = 1.0):	3.15	Evaporation Rate:	Not applicable.
Coeff. Water/Oil Dist.:	Not applicable.		

SECTION 10 - TOXICOLOGICAL INFORMATION

Effects Of Acute Exposure:

Wet concrete mixtures can dry the skin, cause alkali burns, and irritate the eyes and upper respiratory tract. Ingestion can cause irritation of the throat.

Effects Of Chronic Exposure:

Dust from concrete can cause inflammation/irritation of the tissue lining the interior of the nose and the cornea (white) of the eye.

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SECTION 11 - ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

SECTION 12 - DISPOSAL CONSIDERATIONS

Dispose of waste material according to local, provincial, state, and federal regulations. (Since set concrete is stable, allow material to harden).

Dispose in an approved landfill.

SECTION 13 - TRANSPORT INFORMATION

Hazardous materials description/ proper shipping name:	Ready Mix Concrete is not hazardous under the TDG Act (Canada) or DOT regulations (USA).
Hazard Class:	Not applicable.
Identification Number:	Not applicable.
Required Label Text:	Not applicable.
Hazardous substances/reportable quantities (RO):	Not applicable.

SECTION 14 - REGULATORY INFORMATION

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

Ready Mix Concrete is considered a "hazardous chemical" 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:

Ready Mix Concrete qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III), Section 313:

Not subject to reporting requirements under Section 313.

SECTION 15 - REGULATORY INFORMATION (CONTINUED)

Status under TSCA (as of May 1997):

Some substances in Ready Mix Concrete are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act:

Ready Mix Concrete 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 the defined risks do not exist.

Status under Canadian Environmental Protection Act:

Not listed.

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Status under WHMIS:

Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

This product has 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

Prepared By:	Randy Gifford
Approved By:	Dwayne Stewart
Approval Date or Revision Date:	January 8, 2016
Date of Previous MSDS:	January 8, 2013
MSDS Number:	Not Applicable

Other Important Information:

Concrete should only be used by knowledgeable persons. Vital 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, during the setting stage, are the cause of the hazards when handling this product.

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of concrete, as it is commonly used, one 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 sheet does not address hazards that may be posed by other materials mixed with concrete. Users should review other relevant material safety data sheets before working with concrete or working with products containing portland cement.

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