SECTION 1 – PRODUCT AND MANUFACTURER INFORMATION

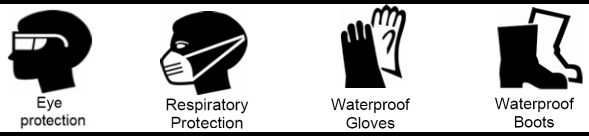
Product name:	Portland cement concrete
Other commercial names:	Ready-mix concrete, pre-mixed concrete, cement concrete, concrete.
Manufacturer:	Unibéton, Béton Miroc, Béton Mercier, Béton 640, divisions of Ciment Québec Inc. 300 rue Saulnier Laval, Quebec, Canada H7M 3T3 Phone: (450) 629-0100 Fax: (450) 629-2175
Components:	The concrete is a mix of Portland cement, water, and inactive ingredients (sand, gravel, or crushed stone) and is used as a building material. It often contains chemical admixtures but only in concentrations of less than 1%. The other additives (fly ash, granulated slag, etc.) have no effect on the risks associated with using concrete. The concrete contains cement that has been made from materials dug out of the ground and processed by means of energy from fuels. Traces of chemical substances may be detected during chemical analysis. For example, the cement may contain traces of magnesium oxide, aluminum oxide, iron trioxide, potassium sodium sulfate compounds, chromium compounds, nickel compounds, and other compounds.
Uses:	Building materials.

WHMIS classification and pictograms

Class D2A
Very toxic material (Chronic toxicity; Carcinogenicity)

Class E
Corrrosive material

Personal protective equipment



SECTION 2 – INFORMATION ON PREPARATION OF MATERIAL SAFETY DATA SHEET

Prepared by:	Frédérick Simoneau, Chief – Health and safety
Preparation date:	September 4, 2014
Review date:	-----

SECTION 3 – INGREDIENT COMPOSITION

Name	CAS #	% (p/p)	Lethal dose (LD_{50}) Lethal concentration (LC_{50})
Amorphous silica*	7631-86-9	30 - 60	---
Portland cement	65997-15-1	10 - 30	---
Calcium oxide	1305-78-8	10 - 30	---
Aluminum oxide	1344-28-1	5 - 10	---
Iron trioxide	1309-37-1	5 - 10	---
Magnesium oxide	1309-48-4	1 - 5	---
Sodium oxide	1313-59-3	1 - 5	---
Potassium monoxide	12136-45-7	1 - 5	---
Titanium dioxide	13463-67-7	0.1 - 1	Oral, rat: LD 50 > 10,000 mg/kg Skin, rabbit: LD 50 > 10,000 mg/kg
* 10 to 30% crystalline silica, alpha quartz (14808-60-7)			

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SECTION 4 – PHYSICAL AND CHEMICAL PROPERTIES			
Physical state, appearance, and colour:	Solid grey material (initially plastic and hardens through the action of hydration).	**Boiling point:**	Not applicable
Odour:	Odourless	**Vapour pressure:**	Data unavailable
Odour detection threshold:	Data unavailable	**Evaporation rate:**	Data unavailable
Density (H_2O=1.0):	1.5 to 2.9	**Solubility in water:**	0.1 %
pH (in water):	12-13	**Vapour density:**	Data unavailable
Flash point:	Not applicable	**Water/oil distribution coefficient:**	Data unavailable
Freezing point:	Water in material freezes at 0°C		

SECTION 5 – FIRE AND EXPLOSION RISKS			
Flammability limit:	Non-flammable and non-combustible	**Flash point:**	Not applicable
Self-ignition temperature:	Not applicable	**Explosion hazard:**	Not applicable
Hazardous combustion products:	None	**Fire danger:**	Non-flammable and non-combustible
Upper/lower flammable or explosive limits:	Not applicable	**Explosion data – sensitivity to mechanical impact:**	Not applicable
General precautions:	Isolate and contain the fire zone. Stay upwind from the fire. Stop leaks only if prudent to do so. Move the containers far from the fire if there is no risk. Fight the fires from a safe distance and a protected location. Use water spray to cool containers and parts of the building frame that are exposed to the flames. Use water spray to disperse the vapours because the fire may restart. Never spray a jet of water directly on the fire because you may spread the fire over a larger surface. Act cautiously and check to see whether the product is burning before you go into the fire zone.		
How to fight fires:	This product is non-combustible. Focus on adjacent materials. Fire fighters should wear a self-contained breathing apparatus with a full face mask and special protective clothing.		
Inappropriate extinguishing agents:	Water is not recommended for fire extinguishing but may be generously used to cool containers that are exposed to the fire.		

SECTION 6 - REACTIVITY	
Stability/reactivity:	The product is stable. It turns solid in the presence of water or humidity.
Decomposition products:	Does not decompose on its own. May produce calcium silicate hydrates and calcium hydroxide if in contact with water. Can dissolve in hydrofluoric acid and produce gaseous, corrosive silicon tetrafluoride. The silicates react with oxidants like fluorine, chlorine trifluoride, and oxygen difluoride.
Incompatible materials and conditions to avoid:	The concrete is incompatible with acids, ammonium and aluminum salts, phosphorus pentachloride, xenon hexafluoride, selenium oxyfluoride, carbon dioxide, phosphorus pentoxide, halogens, metal halides, and strong oxidizing agents like fluorine, chlorine trifluoride, boron trifluoride, manganese trifluoride, and oxygen difluoride.

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SECTION 7 – TOXICOLOGICAL PROPERTIES

Exposure pathways: Skin contact, eye contact, inhalation, and ingestion.

General information: Concrete products do not release dust into the air as long as they are in an intact state, but dust can be produced during such operations as cutting, drilling, sanding, or any other operation on the product. When wet, concrete is caustic and may cause serious, potentially irreversible injuries to body tissues (skin, eyes, respiratory and digestive tracts).

Effects of acute exposure:

Skin: May dry the skin, cause irritations, burns, chafing, and cracks, as well as an allergic reaction in the presence of hexavalent chromium.

Eyes: Irritation, chemical burns, and loss of sight in the case of contact with large amounts.

Inhalation: Irritation of upper respiratory tracts. It may cause inflammation of the inner lining of the nose.

Ingestion: Ingestion of small amounts is not harmful. However, large amounts may be unhealthy and cause bowel problems.

Effects of chronic exposure:

Skin: Burns to the skin. People who are hypersensitive to chromium may develop an allergic reaction that begins with a mild rash and ends in a serious skin ulcer.

Inhalation: Contains crystalline silica. Prolonged exposure to respirable crystalline silica may aggravate disorders of the respiratory system, including the lungs, and cause silicosis.

Exposure limits (*ROHS*[1]):

COMPONENTS	# CAS	Type	Value	Remarks
Amorphous silica	7631-86-9	Not applicable	Not applicable	Not applicable
Crystalline silica, quartz	14808-60-7	TAEV	0.1 mg/m³	**Td**, **C2**, **ME**
Portland cement	65997-15-1	TAEV	5 mg/m³ respirable dust 10 mg/m³ total dust	**Rd**, **Note 1** **Td**, **Note 1**
Calcium oxide	1305-78-8	TAEV	2 mg/m³	Not applicable
Aluminum oxide	1344-28-1	TAEV	10 mg/m³ expressed as Al	**Td**
Iron trioxide	1309-37-1	TAEV	5 mg/m³	Expressed as Fe
Magnesium oxide	1309-48-4	TAEV	10 mg/m³	Not applicable
Sodium oxide	1313-59-3	Not applicable	Not applicable	Not applicable
Potassium monoxide	12136-45-7	Not applicable	Not applicable	Not applicable
Titanium dioxide	13463-67-7	TAEV	10 mg/m³	**Td**, **Note 1**

TAEV : Time-weighted average exposure value. **C2 :** Carcinogenic effect suspected in humans
ME : A substance to which exposure must be reduced to a minimum.
Td : Total dust. **Rd :** Respirable dust.
Note 1 : The standard corresponds to dust containing no asbestos and the percentage in crystalline silica is less than 1%.

Irritancy: Causes skin irritation/burns. Sufficiently lengthy exposure to wet concrete may cause serious injuries and potentially irreversible harm to body tissues, due to (caustic) chemical burns.

Sensitization: Given the available data, it has not been possible to establish the classification criteria.

Carcinogenicity: Portland cement concrete contains crystalline silica. Crystalline silica is currently classified as a carcinogen (Group 1) by the *IARC*[2], as a product that has a suspected carcinogenic effect on humans according to the *ROHS*, and as a suspected human carcinogen (Group A2) according to the *ACGIH*[3]. Concrete also contains titanium dioxide, which may be carcinogenic for humans (Group 2B) according to the *IARC*.

[1] ***ROHS***: *Regulation respecting occupational health and safety (Quebec)*
[2] ***IARC***: *International Agency for Research on Cancer*
[3] ***ACGIH*** : *American Conference of Industrial Hygienists*

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SECTION 7 – TOXICOLOGICAL PROPERTIES (cont'd)	
Toxic effects on reproduction:	Given the available data, it has not been possible to establish the classification criteria.
Teratogenicity and embryotoxicity:	Given the available data, it has not been possible to establish the classification criteria.
Mutagenicity:	Given the available data, it has not been possible to establish the classification criteria.
Synergism:	Data unavailable

SECTION 8 – PREVENTIVE MEASURES AND PERSONAL PROTECTION	
Skin protection:	Prevent contact with the skin by means of gloves, boots, and appropriate clothing. Frequently wash exposed areas with water and soap. Remove wet material that has become stuck to your clothing to avoid any contact with your skin.
Respiratory tract protection:	Use respiratory protection that has been approved by *NIOSH*[4] and by an industrial hygienist or any other qualified professional if concentrations exceed the limits indicated in Section 6. Respiratory protective equipment must be chosen, adjusted, maintained, and inspected in keeping with regulations.
Eye protection:	Wear airtight safety glasses in a dusty environment. Do not wear contact lenses.
Specific technical controls:	Ventilation units must have sufficient capacity and be spatially distributed to ensure compliance with standards of exposure. Use with adequate ventilation to comply with the limits listed in Section 6. Do the work in open air/with local air suction/with ventilation and wear respiratory protection if needed. Local exhaust ventilation is recommended when the mechanical ventilation system cannot maintain product concentrations in the air of the work site below the suggested limit of exposure. When non-protected staff are present, product concentrations in the air must always be maintained below the maximum admissible concentration.
Leak and spill procedures:	Isolate the site. Prevent unprotected non-essential personnel from going into the spill zone. Keep personnel away from low-lying areas. Stay upwind from the spill. Limit access to the spill zone until the cleanup is over. Ensure the cleanup is done only by qualified personnel who wear appropriate devices for respiratory protection. Gather up the material and dump it in an appropriate recipient. Scrape away any wet product and put it in a recipient. Prevent discharge into the sewer system, the ground, or watercourses.
Elimination of hazardous wastes:	Waste production should be avoided or minimized as much as possible. Get rid of surplus and non-recyclable products by making arrangements with a certified waste-disposal contractor. When getting rid of this product, any solutions, and any by-products, you must always comply with the Environment Quality Act, as well as all applicable local/regional and/or other governmental laws. Avoid dispersing material spills, as well as drainage from the spills and any contact with the ground, waterways, drains, and the sewer system.
Handling methods and equipment:	Comply with regulations; use with adequate ventilation; avoid operations that produce a cloud of dust. Avoid inhaling the dust, wear an eye protection device and an appropriate respiratory protection device if ventilation is insufficient. Handle away from incompatible materials. Wear appropriate protective clothing, avoid all contact with your skin. Do not wear contact lenses when handling the product. Immediately remove contaminated clothes and clean them. Do not ingest. Use corrosion-resistant devices. Do not discharge waste into the sewer system.
Storage requirements:	None.
Special shipping information:	Is not subject to the Transportation of Dangerous Goods Act and Regulations (Canada). Is not subject to the U.S. DOT.

[4] ***NIOSH***: *National institute for occupational safety and health*

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SECTION 9 – FIRST AID	
Eyes:	While keeping your eyelids open, rinse your eyes immediately and abundantly with water for at least 15 minutes (or longer until the product is eliminated). Remove your contact lenses and continue to rinse. Consult a physician.
Skin:	Wash exposed areas with water and pH-balanced soap until the product is eliminated. Remove contaminated clothing. Consult a physician.
Inhalation:	In cases of dust inhalation, take the person to a well-ventilated area and place him or her in a semi-seated position. If the person is not breathing, administer artificial respiration. In case of breathing difficulties, give oxygen. Transfer the person immediately to the closest emergency medical service. Consult a physician.
Ingestion:	Immediately after ingestion: give plenty of water to drink. Do not induce vomiting. Never administer anything through the mouth to an unconscious person. Rinse his or her mouth with water.

WARNING
The above information is based on data from reliable sources. Nonetheless, this information is provided to product users only for convenience of reference. Ciment Québec Inc., disclaims any liability for any personal or property-related loss, damage, or injury (including death) that may result directly or indirectly because of reference to the above product use information.

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