



# Material Safety Data Sheet

## Section 1 - IDENTIFICATION

**Product Name:** Ready-Mix Concrete, Freshly Mixed Unhardened Concrete

**Manufacturer:** Breckenridge Material Company  
2833 Breckenridge Industrial Court  
P.O. Box 440459  
St. Louis, MO 63144

**Informational Phone:** (314) 962-1234  
**Emergency Phone:** (314) 496-9157

**Synonyms:** Concrete Ready Mix, Portland Cement Concrete, Ready Mix  
**Chemical Family:** Calcium compounds, Silica compounds

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## Section 2 - COMPOSITION/INFORMATION

Constituents / Ingredients					
Constituent	Percent (By Weight)	CAS #	OSHA PEL Total	OSHA PEL Respirable	ACGIH TLV* (mg/m <sup>3</sup> )
Aggregates	30 - 45	1317-65-3	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> (T)
Crystalline Silica	25 - 45	14808-60-7	10/(%SiO <sub>2</sub> +2)	30/(%SiO <sub>2</sub> +2)	0.1 mg/m <sup>3</sup> (R)
Portland Cement	3 - 25	65997-15-1	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> (T)
Fly Ash	0 - 5	68131-74-8	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> (T)
Calcium Chloride	0 - 2	10043-52-4	N/A	N/A	N/A
Water	5 - 10	77321-18-5	N/A	N/A	N/A

*\*(T) = Total Dust, (R) = Respirable Dust*

### Trace Elements:

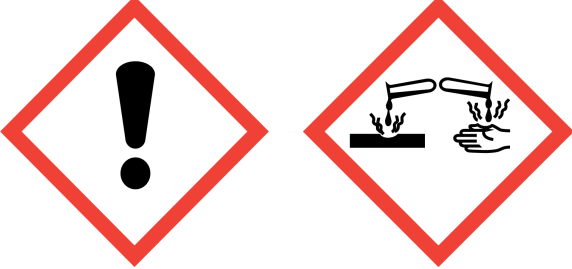
Ready-mix concrete is made from materials mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

### Additives:

Certain additives may be incorporated in the ready mix-concrete and MSDS's are available for such additives upon request.



## Section 3 – HAZARDS IDENTIFICATION

<b>WARNING</b>	
	<p>Corrosive – Causes severe burns. Toxic – Harmful by inhalation (Contains crystalline silica)</p> <p>Use proper engineering controls, work practices, and personal protective equipment to prevent exposure to wet or dry product.</p> <p>Read MSDS for details</p>

### Emergency Overview:

Short-term exposure to wet concrete is not likely to cause an immediate hazard. However, exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin or eye) damage in the form of chemical (caustic) burns. The same type of tissue damage can occur if wet or moist areas of the body are exposed for sufficient duration to the dry ingredients in unhardened concrete.

### Routes of Exposure:

#### Eye Contact:

Contact with unhardened concrete can cause injury to the eye. If splashed in the eye, it can cause moderate irritation, chemical burns, or even blindness. Exposures to the eye require immediate first-aid treatment (see Section 4) and medical attention to prevent significant damage to the eye.

#### Skin Contact:

Exposure to the dry ingredients in Ready-Mix concrete may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. 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 during the handling or mixing of the dry ingredients in ready-mix concrete may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Exposure to wet concrete 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.

Allergic reaction can occur upon direct exposure to wet concrete. Reactions may vary from a mild rash to severe burns and skin ulcers. Persons may become sensitized to wet concrete at any point during their life. Reaction experiences could result after one exposure or even after several years of contact with the product.

#### Ingestion:

Do not ingest concrete. Although ingestion of small quantities of wet concrete or its dry ingredients are not known to be harmful, ingestion of larger quantities can cause burns to the mouth, throat, stomach, and digestive tract.



**Inhalation:**

The ingredients in ready-mix concrete contain crystalline silica. Exposure to these dry ingredients in excess of the applicable TLV or PEL (see Section 2) may cause or aggravate other lung conditions. Exposure to the dry ingredients in Ready-Mix concrete may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system

**Carcinogenic Potential:**

Ready-mix concrete is not listed as a carcinogen by NTP, OSHA, or IARC. It does, however, contain various amounts of substances listed as carcinogens by these organizations, including but not limited to: crystalline silica, hexavalent chromium, lead compounds, mercury compounds, nickel compounds, and possibly other chemicals.

**HMIS Ratings:**

Health	Flammability	Reactivity	PPE
1	0	0	*Section 8*

## 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 mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet concrete, liquids from wet concrete products, or prolonged wet skin exposure to the dry ingredients in ready-mix concrete.

**Ingestion:**

Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

**Inhalation of Airborne Dust:**

Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. (Inhalation of gross amounts of the dry ingredients in ready-mix concrete required immediate medical attention.)

## Section 5 – FIRE & EXPLOSION DATA

**Flash Point:** None

**Lower Explosive Limit:** None

**Upper Explosive Limit:** None

**Special Fire Fighting Procedures:**

Ready mix concrete is not combustible. Protect surrounding exposures using fire streams and extinguishing media appropriate for the materials involved in the fire.

**Extinguishing Media:** None

**Auto Ignition Temperature:** None

**Hazardous Combustion Products:** 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.

Scrape up wet material and place in an appropriate container. Allow the wet concrete to “harden” before disposal. Do not attempt to wash wet concrete into sewers, storm drains, rivers, lakes, or streams.

Wear appropriate personal protection equipment as described in Section 8

Dispose of waste material according to local, state, and federal regulations.

## Section 7 – HANDLING & STORAGE

Normal temperatures and pressures do not affect the material.

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

## Section 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

	<b>Eye Protection</b>	When engaged in activities where wet concrete or its dry ingredients 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 around wet concrete or its dry ingredients.
	<b>Hand Protection</b>	Avoid contact with wet concrete products or its dry ingredients. Wear impervious gloves to eliminate skin contact. Do not rely on barrier creams; barrier creams should not be used in place of gloves.
	<b>Body Protection</b>	Prevention is essential to avoid potentially severe skin injury. Avoid contact with wet concrete products or its dry ingredients. Wear long sleeves and pants to prevent exposure to skin. Where prolonged exposure to wet concrete products might occur, wear impervious clothing to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean dry clothing.
	<b>Respiratory Protection</b>	Avoid actions that cause dust exposure to occur. NIOSH approved particulate filter respirators should be used in the context of respiratory protection programs meeting the requirements of the OSHA respiratory protection standard (29CFR 1910.134) to control exposures when ventilation or other controls are inadequate. Respirator and/or filter cartridge selection should be based on American National Standards Institute (ANSI) Standards Z88.2 Practices for Respiratory Protection.
	<b>Engineering Controls</b>	Use local exhaust or general ventilation to control exposures below applicable exposure limits; especially indoors and in confined spaces.



## Section 9 – PHYSICAL & CHEMICAL PROPERTIES

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<b>Physical State:</b>	Semi-fluid, flowable, granular paste	<b>Evaporation Rate:</b>	N/A
<b>Appearance:</b>	Variety of color (usually gray)	<b>pH (in water):</b>	12.0 – 13.5
<b>Odor:</b>	None	<b>Boiling Point:</b>	N/A
<b>Vapor Pressure:</b>	N/A	<b>Freezing Point:</b>	32° F (water content)
<b>Vapor Density:</b>	N/A	<b>Viscosity:</b>	212° F (water content)
<b>Specific Gravity:</b>	1.70 – 3.00	<b>Solubility in Water:</b>	Slightly Soluble

## Section 10 – STABILITY & REACTIVITY

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<b>Stability:</b>	Stable
<b>Incompatibility:</b>	Wet Ready-Mix concrete is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Adding water results in hydration and produces (caustic) calcium hydroxide.
<b>Hazardous Polymerization:</b>	Will not occur
<b>Hazardous Decomposition:</b>	None

## Section 11 – TOXICOLOGICAL INFORMATION

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Crystalline Silica: Exposures to respirable crystalline silica are not expected during the normal use of this product; however, actual levels must be determined by workplace hygiene testing. The weight percent of respirable crystalline silica may not have been measured in this product. Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease (i.e., silicosis) and/or lung cancer. The development of silicosis may increase the risks of additional health effects. Smoking in combination with silica exposures increases the risk of cancer. The risk of developing silicosis is dependent upon the exposure intensity and duration.

NIOSH conducted a study, “The Mortality of U.S. Portland Cement and Quarry Workers” (March 1985) which found: “There is no excess mortality from all causes of death, lung cancer, on-malignant respiratory disease, or ischemic heart disease” among workers studied.

## Section 12 – ECOLOGICAL INFORMATION

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**Ecotoxicity:** No Data Available

**Relevant Physical & Chemical Properties:** See Section 9 and 10



## Section 13 – DISPOSAL

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Dispose of waste material according to local, state, and federal regulations. (Since ready-mix concrete is stable, uncontaminated unused dry material may be saved for future use.)

## Section 14 – TRANSPORTATION DATA

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Ready-Mix concrete is not classified as a Hazardous Material under U.S. Department of Transportation (DOT) or Canadian TDG regulations.

**Hazardous Substances/Reportable Quantities (RQ):** Not Applicable

## Section 15 – OTHER REGULATORY INFORMATION

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**OSHA/MSHA Hazard Communication Standard, 29 CFR 1910.1200:**

Unhardened Ready-Mix concrete is considered a "hazardous chemical" under this regulation, and should be included in the employer's hazard communication program.

**Reportable Quantities Under the Clean Water Act, CERCLA, and EPCRA, 40 CFR 117, 302 and 355:**

Unhardened Ready-Mix concrete is not Listed.

**Hazard Category and Applicability of EPCRA Hazardous Substance Inventory Reporting, 40 CFR 370:**

Unhardened Ready-Mix concrete qualifies as a "hazardous substance" with a delayed health hazard.

**Applicability of EPCRA Toxic Chemical Release Inventory (TRI) Reporting. 40 CFR 372:**

Unhardened Ready-Mix concrete is not a TRI listed chemical, however TRI listed constituents are present in concentrations below the Supplier Notification De Minimus Levels.

**Status Under the Toxic Substances Control Act, 40 CFR 710:**

Unhardened Ready-Mix concrete and/or the chemicals present in Unhardened Ready-Mix concrete are on the TSCA inventory list.

**Status under the Federal Hazardous Substances Act and Its Regulations:**

Unhardened Ready-Mix concrete is a "hazardous substance" subject to the following labeling requirements for consumer use:

**WARNING: INJURIOUS TO EYES. CAUSES SKIN IRRITATION. READ THIS WARNING BEFORE USING.**

**Contains Portland Cement**

Contact with wet (unhardened concrete, mortar, wet cement, or cement mixtures) can cause skin irritation, severe chemical burns, or serious eye damage. Avoid contact with eyes and skin. Wear waterproof gloves, a fully buttoned long-sleeved shirt, full-length trousers, and tight fitting eye protection when working with these materials. If you have to stand in wet concrete, use waterproof boots that are tight at tops and high enough to keep concrete from flowing into them. If you are finishing concrete wear knee-pads to protect knees. Wash wet concrete, mortar, wet cement, or cement mixtures from your skin with fresh, clean water immediately after contact. Indirect contact through clothing can be as serious as direct contact. In the case of



indirect contact through clothing, promptly remove all clothing coming in contact with cement mixtures and promptly wash all affected areas of skin. Seek immediate medical attention if you have persistent or severe discomfort. In case of eye contact, flush with plenty of water for at least 15 minutes. Consult a physician immediately.

**KEEP OUT OF REACH OF CHILDREN.**

USER AGREES TO CONVEY THIS WARNING TO ALL PERSONS WHO MAY PURCHASE, USE OR COME IN CONTACT WITH WET (UNHARDENED) CONCRETE, MORTAR, WET CEMENT OR CEMENT MIXTURES.

## Section 16 – OTHER INFORMATION

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### **Other Important Information:**

Ready Mix concrete 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 concrete 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 unhardened (wet) Ready-Mix concrete as it is commonly used, the 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 does not address hazards that may be posed by materials other than natural sands and gravels mixed with portland cement and flyash to produce Ready-Mix concrete products. Users should review other relevant material safety data sheets before working with this portland cement concrete.

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