

# Material Safety Data Sheet

## Section 1 – IDENTIFICATION

**Product Name:**

Ready-Mix Concrete, Freshly Mixed  
Unhardened Concrete

**Previous MSDS:**

This MSDS supersedes all previous versions

**Supplier/Manufacturer:**

Joseph P. Carrara & Sons Inc.  
2464 Case Street  
Middlebury, VT. 05753

**Revision Date:**

1-18-2013

**Chemical Name/Synonyms:**

Ready-Mix Concrete, Freshly Mixed  
Unhardened Concrete

**Chemical Family:**

Calcium compounds  
Silica compounds

## Section 2 – COMPONENTS

<b>Hazardous Ingredients:</b>	<b>Total Dust</b>	<b>Respirable Dust</b>
Portland Cement (CAS # 65997-15-1) – approximately 7% by weight		
ACGIH TLV	10 mg/m <sup>3</sup>	
OSHA PEL	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
OSHA PEL		50 mppcf (crystalline silica <1%)
Aggregates (CAS # None) – Combined with Silica to comprise 30% of weight		
ACGIH TLV	10 mg/m <sup>3</sup>	
OSHA PEL	15 mg/m <sup>3</sup>	5mg/m <sup>3</sup>
Flyash (CAS # 68131-74-8) – approximately 2% by weight		
ACGIH TLV	10 mg/m <sup>3</sup>	
OSHA PEL	15 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Crystalline Silica (CAS # 14808-60-7) – approximately 21% by weight		
ACGIH TLV		0.1 mg/m <sup>3</sup>
OSHA PEL	2 mg/m <sup>3</sup>	(30 mg/m <sup>3</sup> /
(13% SiO <sub>2</sub> +2))		
OSHA PEL		0.7 mg/m <sup>3</sup> 10 mg/m <sup>3</sup> /
(13% SiO <sub>2</sub> +2))		
OSHA PEL		13.8 mppcf (250 / (13% SiO <sub>2</sub> +5)) mppcf
Water (CAS # 77321-85) – approximately 40% by weight		

**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**

**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:**

Exposure to airborne dust during the handling or mixing of the dry ingredients in ready-mix 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 (see Section 4) and medical attention to prevent significant damage to the eye.

**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 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.

Some individuals may exhibit an allergic response upon exposure to wet concrete. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react on their first contact with the product. Other persons may first experience this effect after years of contact with wet unhardened concrete products.

**Ingestion:**

Although inadvertent ingestion of small quantities of wet concrete or its dry ingredients are not known to be harmful, accidental ingestion of larger quantities can be harmful and requires immediate medical attention.

**Inhalation:**

The ingredients in ready-mix concrete contain crystalline silica. Exposure to these 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.

**Medical Conditions Which May Be Aggravated by Inhalation or Dermal Exposure:**

Pre-existing upper respiratory and lung diseases by exposure to the dry ingredients.

Persons with unusual (hyper) sensitivity to chemicals, dusts, and metallic compounds may experience adverse reactions to wet concrete.

**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 these organizations, including but not limited to: crystalline silica, hexavalent chromium, lead compounds, mercury compounds, nickel compounds, and possibly other chemicals.

## 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

**Extinguishing Media:**

Not Combustible

**Lower Explosive Limit:**

None

**Special Fire Fighting Procedures:**

None

**Upper Explosive Limit:**

None

**Hazardous Combustion Products:**

None

**Auto Ignition Temperature:**

Not Combustible

## 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 down sewers or storm drains.

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**

### **Eye Protection:**

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.

### **Skin Protection:**

Prevention is essential to avoid potentially severe skin injury. Avoid contact with wet concrete products or its dry ingredients. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to wet concrete 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 wet concrete or its ingredients with a pH neutral soap and water and 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 exposure to occur. Use local or general ventilation to control exposures below applicable exposure limits.

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.

### **Ventilation:**

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

## **Section 9 – PHYSICAL & CHEMICAL PROPERTIES**

**Appearance:**  
Mixture

Gray Granular  
**Vapor Pressure:** Not Applicable

	<b>Odor:</b> Odor	No Distinct	
		<b>Vapor Density:</b>	Not Applicable
	<b>Physical State:</b> Liquid Not Applicable		<b>Boiling Point:</b>
<b>Specific Gravity (H<sub>2</sub>O=1):</b> Not Applicable	1.70 to 3.00		<b>Melting Point:</b>
<b>pH (in water) (ASTM D 1293-95):</b> Not Applicable	12 to 13		<b>Evaporation Rate:</b>
<b>Solubility in Water:</b>	Slightly Soluble		

## Section 10 – STABILITY & REACTIVITY

<b>Stability:</b>	Stable
<b>Conditions to Avoid:</b>	Unintentional contact with water
	<b>Incompatibility:</b> Wet Ready-Mix concrete is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal
	<b>Hazardous Decomposition:</b> Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide
<b>Hazardous Polymerization:</b>	Will not occur

## Section 11 – TOXICOLOGICAL INFORMATION

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, non-malignant respiratory disease, or ischemic heart disease” among workers studied.

## Section 12 – ECOLOGICAL INFORMATION

**Ecotoxicity:** No recognized unusual toxicity to plants or animals

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

## Section 13 – DISPOSAL

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

<b>Hazardous Materials Description/Proper Shipping Name:</b>	Ready-Mix concrete is not hazardous under U.S. regulations.
	Department of Transportation (DOT)
<b>Hazard Class:</b>	Not Applicable
<b>Identification Number:</b>	Not Applicable
<b>Required Label Text:</b>	Not Applicable
<b>Hazardous Substances/Reportable Quantities (RQ):</b>	Not Applicable

## **Section 15 – OTHER REGULATORY INFORMATION**

**Status under OSHA 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".

**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 the chemicals present in Unhardened Ready-Mix concrete are on the TSCA inventory list.

## **Section 15 – OTHER REGULATORY INFORMATION (Continued)**

**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**

**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.

**Section 16 – OTHER INFORMATION (Continued)**

**Abbreviations:**

ACGIH	American Conference of Governmental Industrial Hygienists
ANSI	American National Standards Institute
CAS	Chemical Abstract Service
CERCLA (Superfund)	Federal Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
EPCRA	Emergency Planning and Community Right-to-Know Act of 1986
IARC	International Agency for Research on Cancer

m3	Cubic Meter
mg	Milligram
mppcf	Million Particles per Cubic Foot
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
NIOSH	National Institute of Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
RQ	Reportable Quantities
SiO2	Crystalline Silica, Quartz
TLV	Threshold Limit Values
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
<b>WHMIS</b>	<b>Workplace Hazardous Materials Information System</b>

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