

# Material Safety Data Sheet

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## SECTION 1 - IDENTIFICATION

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**Product Name**

Ready-Mix Concrete, Freshly Mixed Unhardened Concrete

**Previous MSDS**

This MSDS supersedes all previous versions.

**Supplier/Manufacturer :**

Ready-Mix West Indies Limited  
Tumpuna Road, Guanapo, Arima  
PO Box 825 POS  
Tel. No. 643-2429/32  
Fax 643-3209

**Revision Date :**

30<sup>th</sup> July 2006

**Chemical Name/Synonyms :**

Ready-Mix Concrete, Freshly Mixed Unhardened Concrete

**Prepared By :**

Gerard B. Torres

**Chemical Family :**

Calcium Compounds  
Silica Compounds

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## SECTION 2 - COMPONENTS

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**Hazardous Ingredients:**

***Total Dust***

***Respirable Dust***

Portland Cement (CAS # 65997-15-1) – approximately 2% to 26% by weight.

ACGIH TLV	10 mg/m3		
OSHA PEL	15 mg/m3	5 mg/m3	
OSHA PEL		50 mppcf	(crystalline silica < 1%)
Cal/OSHA PEL	10 mg/m3	5 mg/m3	

Aggregates (CAS # none) - approximately 36 to 92% by weight. (natural sand and gravel)

ACGIH TLV	10 mg/m3		
OSHA PEL	15 mg/m3	5 mg/m3	
Cal/OSHA PEL	10 mg/m3	5 mg/m3	

Crystalline Silica (CAS # 14808-60-7) – approximately 5% to 13% by weight.

ACGIH TLV		0.1 mg/m3	
OSHA PEL	2 mg/m3		{ 30 mg/m3 / (13% SiO <sub>2</sub> + 2)}
OSHA PEL		0.7 mg/m3	{ 10 mg/m3 / (13% SiO <sub>2</sub> + 2)}
OSHA PEL		13.8 mppcf	{250 / {13% SiO <sub>2</sub> + 5}} mppcf
Cal/OSHA PEL	0.3 mg/m3	0.1 mg/m3	

Water ( CAS # 77321-85 ) – approximately 6% to 13% by weight.

**Trace Elements :**

Ready-mix Concrete is made from materials, mined from earth. Trace amount of naturally occurring elements might be detected during chemical analysis of these materials.

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## SECTION 3 - HAZARDS IDENTIFICATION

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**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 issue (skin and 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 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 to their first contact with the product .

##### 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 irritation to the moist mucous membrane 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.

#### 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 which may result in exposure which require the following warning.

**WARNING:** This product contains chemicals known to the state of Trinidad to cause cancer, birth defects or other reproductive harm.

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## SECTION 4 - FIRST AID

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#### Eyes :

Immediate flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes. Including under lids to remove particles. Call physician immediately.

**Skin :**

Wash skin with cool water and ph neutral soap or a mild detergent intended to 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:**

Removed 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 requires immediate medical attention.)

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**SECTION 5 - FIRE & EXPLOSION DATA**

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<b><u>Flash Point</u></b> .....None	<b><u>Extinguishing Media</u></b> ..... Not combustible
<b><u>Lower Explosive Limit</u></b> .....None	<b><u>Special Fire Fighting Procedure</u></b> .....None
<b><u>Upper Explosive Limit</u></b> .....None	<b><u>Hazardous Combustion Products</u></b> .....None
<b><u>Auto Ignition Temperature</u></b> .... Not Combustible	<b><u>Unusual Fire &amp; Explosion Hazard</u></b> .....None

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**SECTION 6 - ACCIDENTAL RELEASE MEASURES**

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Collect dry material using a scoop. Avoid actions that cause dust to be airborne. Avoid inhalation of dust and contact with skin.

Scrape up wet materials and place it 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 protective equipment as described in section 8.  
Dispose of waste material according to local, state and federal regulations

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**SECTION 7 - HANDLING & STORAGE**

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Normal temperatures and pressures do not affect the material.

Promptly remove dusty clothing or clothing which is wet with concrete and launder before re – use. Wash Thoroughly after exposure to dust or wet concrete mixtures.

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**SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION**

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**Eye Protection:**

When engaged in activities where wet concrete or its drying ingredients could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environment and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working.

**Skin Protection:**

Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) concrete products or its dry ingredients. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened 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 cement or its dry ingredients with PH neutral soap and water. Wash again at the end of the work. If irritation occurs, immediately wash the affected areas and seek treatment. If clothing becomes saturated with wet concrete, it should be removed and replaced with dry clean clothing.

**Respiratory Protection:**

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

NIOSH or MSHA approved particulate filter respirators should be used in the context of respiratory protection program meeting the requirements of the OSHA respiratory protection standard ( 29 CFR 1910.134) to control exposures when ventilation or other controls are inadequate or discomfort or irritation is experienced. Respirator and / or filter cartridge selection should be based on American National Standard Institute (ANSI) Standard z88.2 Practices for Respiratory protection.

**Ventilation.**

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

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**SECTION 9 - PHYSICAL & CHEMICAL PROPERTIES**

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<b><u>Appearance</u></b> .....Gray Granular Mixture	<b><u>Vapor Pressure</u></b> .....Not Applicable
<b><u>Odor</u></b> .....No distinct Odor	<b><u>Vapor Density</u></b> .....Not Applicable
<b><u>Physical State</u></b> .....Liquid	<b><u>Boiling Point</u></b> .....Not Applicable
<b><u>Specific Gravity (H2O = 1)</u></b> ..... 1.70 to 3.00	<b><u>Melting Point</u></b> .....Not Applicable
<b><u>PH ( in water )(ASTM D 1293-95)</u></b> ... 12 to 13	<b><u>Evaporation rate</u></b> .....Not Applicable
<b><u>Solubility in Water</u></b> .....Slightly Soluble	

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**SECTION 10 - STABILITY & REACTIVITY**

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**Stability:**  
Stable

**Hazardous Decomposition:**  
Will not spontaneously occur. Adding Water results in hydration and produces (caustic) calcium hydroxide.

**Conditions to Avoid:**  
Unintentional contact with water.

**Incompatibility:**  
Wet Ready – mix concrete is alkaline.  
As such it is incompatible with acids,  
Ammonium salts and aluminum metal.

**Hazardous Polymerization:**  
Will not occur.

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**SECTION 11 - TOXICOLOGICAL INFORMATION**

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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 diseases, or ischemic heart disease” among workers studied.

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**SECTION 12 - ECOLOGICAL INFORMATION**

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**Ecotoxicity:**  
No recognized unusual Toxicity to plants or Animals.

**Relevant Physical and Chemical properties:**  
( See Sections 9 and 10 )

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**SECTION 14 - TRANSPORTATION DATA**

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**Hazardous Materials Description / Proper Shipping Name:**

**Identification Number:**  
Not Applicable

Ready-Mix Concrete is not hazardous under U.S. Department of Transportation (DOT) regulations.

**Required Label Text:**

**Hazard Class:**  
Not Applicable

Not Applicable  
**Hazardous Substances / Reportable Quantities:**  
**( R.Q. )**  
Not Applicable

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**SECTION 15 - OTHER REGULATORY INFORMATION**

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**Status under OSHA Hazard Communication Standard 29 CFR 1910.1200.**

Unhardened Ready-Mix concrete is considered a "hazardous chemical" under these regulations 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 Substances Inventory Reporting, 40 CFR 370**

Unhardened Ready-Mix concrete qualifies as a hazardous material.

**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.

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

Unhardened Ready-Mix concrete is a "hazardous substances" 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 irritations severe chemical burns, or serious eye damage. Avoid contact with eye 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 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, so promptly rinse out 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, so promptly rinse out wet concrete, mortar, wet cement, or cement mixtures from clothing. 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 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.

**Status under Workplace Hazardous Materials Information System (WHMIS), Canada:**

Unhardened Ready-Mix concrete is considered to be a hazardous, material under the Hazardous Product Act as defined by the Controlled Products Regulations (Class E – Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WI-IMIS).

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## SECTION 16 - OTHER INFORMATION

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### **Other Important Information :**

Readymix 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 hazard 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.

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 Fly Ash to produce Readymix concrete products. Users should review other relevant material safety data sheets before working with this Portland Cement concrete.

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## SECTION 16 - OTHER INFORMATION

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### **Abbreviations:**

#### ACGIH

American Conference of Governmental  
Industrial Hygienists

#### MSDS

Material Safety Data Sheet

#### ANSI

American National Standard Institute

#### MSHA

Mine Safety and Health Administration

#### Cal/OSHA

California Division of Occupational Safety  
and Health Administration

#### NIOSH

National Institute of Occupational Safety and  
Health

#### CAS

Chemical Abstract Service

#### NTP

National Technology Program

#### CERCLA

Federal Comprehensive Environmental  
Response, Compensation and Liability  
Act - Superfund

#### OSHA

Occupational Safety and Health Administration

#### CFR

Code of Federal Regulations

#### PEL

Permissible Exposure Limit

#### DOT

Department of Transportation

#### RQ

Reportable Quantities

#### EPCRA

Emergency Planning and Community  
Right to Know Act of 1986.

#### S1O2

Crystalline Silica, Quartz

#### TLV

Threshold Limit Values

#### IARC

International Agency for Research  
on Cancer

#### TRI

Toxic Release Inventory

#### m<sup>3</sup>

Cubic Meter

#### TSCA

Toxic Substance Control Act

#### Mg

Milligram

#### WHMIS

Workplace Hazardous Materials  
Information System

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