

# SAFETY DATA SHEET

## Section 1: Identification

### Freshly Mixed Unhardened Concrete



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This material is used in construction and manufacturing and may be used in making structural and decorative items and effects. Upon drying concrete becomes a solid.

## Section 2: Hazard(s) Identification

**Hazard Classification:** Irritant

**Signal Word:** Warning



**Hazard Statement(s):** Acute - Wet plastic, unhardened concrete can dry the skin and cause alkali burns

Chronic – Hypertensive individuals may develop and allergic dermatitis –Portland cement may contain trace amounts of chromium

**Carcinogenicity:** Wet plastic concrete is not carcinogenic.

**Carcinogenic Potential:** Category 1A - Concrete frequently contains **crystalline silica** in concentrations greater than 0.1%, principally contributed by the aggregates. Respirable crystalline silica is classified by IARC (International Agency for Research on Cancer) as a known human carcinogen and by NTP (National Toxicology Program) as "reasonably anticipated to be carcinogenic." Crystalline silica in wet concrete is not respirable and does not pose a hazard when the concrete is in its plastic or unhardened state. Once concrete has

hardened state. Once concrete has hardened, long term exposure to airborne dust generated by grinding, sawing, drilling or breaking of hardened concrete, could potentially lead to hazardous exposures to workers and subsequent health related problems. Appropriate respiratory protection should be worn during these operations.

Use barrier creams, gloves, boots and clothing to protect the skin from prolonged contact with plastic (wet) concrete. Particularly avoid abrasion of the skin in contact with unhardened plastic concrete. Precautions must be observed because cement burns occur with little warning – little heat is sensed. Eye protection is not generally required, except when placing methods cause splash, then tight fitting goggles should be used.

### Section 3: Composition/Information on Ingredients

#### Substances:

**Formula** – Mixtures of Portland or blended cements, concrete aggregates and chemical admixtures

#### Mixtures:

Freshly Mixed Unhardened Concrete		
Portland and Blended Cements:		
<i>Tricalcium Silicate</i> ( $3\text{CaO}\bullet\text{SiO}_2$ )	(CAS #12168-85-3)	
<i>Dicalcium Silicate</i> ( $2\text{CaO}\bullet\text{SiO}_2$ )	(CAS #10034-77-2)	
<i>Tricalcium Aluminate</i> ( $3\text{CaO}\bullet\text{Al}_2\text{O}_3$ )	(CAS #23042-78-3)	
<i>Tetracalcium Aluminoferrite</i> ( $4\text{CaO}\bullet\text{Al}_2\text{O}_3\bullet\text{Fe}_2\text{O}_3$ )	(CAS #12068-35-8)	
<i>Calcium Sulfate Dihydrate</i> ( $\text{CaSO}_4\bullet 2\text{H}_2\text{O}$ ) ( <i>Gypsum</i> )	(CAS #7778-18-9) PEL-TWA	15 Mg/M <sup>3</sup> Total Dust
<i>Plus traces of Calcium Oxide (CaO), Magnesium Oxide (MgO), Potassium Sulfate (K<sub>2</sub>SO<sub>4</sub>) and Sodium Sulfate (Na<sub>2</sub>SO<sub>4</sub>)</i>		5 Mg/M <sup>3</sup> Respirable Fraction
<i>Other Ingredients:</i>		
<i>Concrete Aggregates, Inert gravel, sand and rock</i>		
<i>Admixtures may include fly ash, granulated slag, and very small amounts of organic and inorganic materials which have no effect on the hazards associated with the use of the product</i>		

### Section 4: First-Aid Measures

Prolonged contact between fresh wet concrete and skin surfaces, eyes, and clothing may result in burns that are quite severe, including third-degree burns. If irritation persists consult a physician. **For deep burns or large affected skin areas, seek medical attention immediately.**

The **A-B-Cs** of fresh concrete's effect on skin are:

**Abrasive** Sand contained in fresh concrete is abrasive to bare skin.

**Basic** & Portland Cement is alkaline in nature, so wet

**Caustic** concrete and other cement mixtures are strongly basic (pH of 12 to 13). Strong bases-like strong acids-are harmful, or caustic to skin.

**Drying** Portland Cement is hygroscopic-it absorbs water. In fact, Portland Cement needs water to harden. It will draw water away from any material it contacts-including skin.

Irrigate eyes with Water. Wash exposed areas of the body with soap and water – change clothing if contaminated with wet concrete.

Irritation of the skin and burning sensation particularly when exposure is in of the skin previously subjected to abrasion or irritation.

Open wounds and sores may be aggravated by exposure

### Section 5: Fire-Fighting Measures

N/A

### Section 6: Accidental Release Measures

Spill does not increase hazard

Material can be retained until it hardens when it can be disposed of as a common waste

### Section 7: Handling and Storage

Cement should be kept dry until it is mixed

There is an exothermic action that takes place once the ingredients mix although that for the most part disperses usually during the mixers drive to the delivery point. That helps expedite the drying time upon placement.

### Section 8: Exposure Controls/Personal Protection

Since this material is wet OSHA PEL (Permissible Exposure Limit) – TWA (Time Weighted Average) do not apply

Avoid contact between skin/eye and wet/moist concrete

Local and/or general exhaust is not required when concrete is wet

Respiratory protection is not required while concrete is wet

Waterproof and chemical resistant gloves should be worn. These may include well-fitted butyl, alkali-resistant gloves or nitrile gloves

Tight fitting goggles should be worn if there is a possibility of a concrete splash

Waterproof boots, long-sleeved shirt and full length trousers should be worn

### Section 9: Physical and Chemical Properties

Gray, plastic, flowable, granular composite

Faint odor

Vapor pressure does not apply

Odor threshold does not apply

Vapor density does not apply

pH for plastic concrete is 12.5

Relative density does not apply

Solubility in water is slight (0.01 to 1%)

Concrete is not flammable

Vapor pressure does not apply

Vapor density (Air + 1) does not apply

Specific Gravity (H<sub>2</sub>O = 1) is 2.28 – 2.42

## Section 10: Stability and Reactivity

### Reactivity:

Concrete is not reactive

### Chemical stability:

Concrete is a stable material

### Other

Concrete hardens 2 to 8 hours and is no longer hazardous

Concrete hardens in a few hours and does not decompose

## Section 11: Toxicological Information

Avoid contact between skin/eye and wet/moist concrete use of well-fitted butyl, alkali-resistant gloves or nitrile gloves is recommended

Tight fitting goggles should be worn if there is a possibility of a concrete splash to avoid contact with the eyes

## Section 12: Ecological Information (non-mandatory)

Plastic concrete should not present a serious ecological hazard.

Caution must be taken to avoid allowing wet concrete to enter drains and waterways

Contain spillage, then collect and place in suitable containers for reuse or disposal.

## Section 13: Disposal Considerations (non-mandatory)

Material can be retained until it hardens when it can be disposed of as a common waste

Undelivered concrete should be retained in an area and in a manner that would prevent the material from entering drains or waterways

## Section 14: Transport Information (non-mandatory)

Freshly Mixed Unhardened Concrete does not have a DOT classification

## Section 15: Regulatory Information (non-mandatory)

Freshly Mixed Unhardened Concrete does not have classification

## Section 16: Other Information

Wet concrete should only be used by knowledgeable persons. Using this product safely requires the recognition that Portland cement chemically reacts with water; and that some of the intermediate products of the reaction, during the setting stage, are the cause of the hazards when handling this product.

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of concrete (as 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 safety data sheet does not address hazards that may be posed by other materials mixed with concrete or products containing Portland cement.

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**Date Developed:** 7 March 2014