

SECTION 1 – PRODUCT & COMPANY IDENTIFICATION

Product Name: Ready-Mix Concrete (wet, unhardened concrete)

Product Trade Names: Pre-Mixed Concrete, Transit Mixed Concrete, Ready-Mix Grout, Lightweight Concrete, Portland Cement Concrete, Concrete Mud; this MSDS covers all concrete mix designs prepared by County Materials.

Product Use: Ready-Mix Concrete is a structural component used in construction and civil engineering projects.

Chemical Name & Synonyms: N/A (calcium and silica compounds)

Formula: This product consists of portland cement, fly ash, sand, aggregate, and ad mixtures, individual compositions of constituents will vary within the mix design ranges.

Supplier/Manufacturer: County Materials Corporation **Corp. Address:** 205 North Street
P.O. Box 100
Marathon, WI 54448

Telephone Number: 715-848-1365
National Poison Control: 800-222-1222

SECTION 2 – COMPOSITION / HAZARDOUS INGREDIENTS

| Ingredient | CAS Number | % By Weight | OSHA PEL (TWA) | ACGIH TLV (TWA) |
|--|-------------------|--------------------|---|--|
| Crystalline Silica (Quartz sand & granite) | 14808-60-7 | 1 – 80 | 30 / (%SiO ₂ +2) mg/m ³ Total particulate 10 / (%SiO ₂ +2) mg/m ³ Respirable | 0.025 mg/m ³ Respirable quartz |
| Portland Cement | 65997-15-1 | 10 – 30 | 15 mg/m ³ Total 5 mg/m ³ Respirable | 10 mg/m ³ Total |
| Calcium Carbonate (Limestone) | 1317-65-3 | 25 – 65 | 15 mg/m ³ Total 5 mg/m ³ Respirable | 10 mg/m ³ Total |
| Fly Ash, containing: | | 0 – 20 | | |
| Calcium Oxide | 1305-78-8 | | 5 mg/m ³ Total | 2 mg/m ³ Total |
| Magnesium Ox. | 1309-48-4 | | 15 mg/m ³ Total | 10 mg/m ³ Total |
| Iron Oxide | 1309-37-1 | | 10 mg/m ³ Total | 10 mg/m ³ Total |
| Particulates not otherwise classified | n/a | ----- | 15 mg/m ³ Total 5 mg/m ³ Respirable | 10 mg/m ³ Total 3 mg/m ³ Respirable |

NOTE:

Cements and sand and gravel may contain 0 1% - 60% crystalline silica (CAS No. 14808-60-7) depending on the proportion and crystalline silica content of the ingredients. All ingredients which are mined from the earth may contain crystalline silica or trace amounts of other chemicals, such as: potassium and sodium sulfate, chromium, and nickel compounds. Certain additive may be incorporated in ready-mix concrete, and MSDSs are available for each.

SECTION 3 – HAZARDS IDENTIFICATION

Emergency Overview:

Concrete is a light gray semi-fluid, flowable, granular paste mixture of varying texture. It is not combustible or explosive.

WET CONCRETE: Exposure of sufficient duration to wet product, or dry material on moist areas of the body, can cause serious, potentially irreversible damage to skin, eye, respiratory and digestive tracts due to caustic (chemical) burns, including third degree burns. Symptoms may be delayed 24 to 48 hours. Wet product can cause skin sensitization due to presence of hexavalent chromium. The reaction can range from a mild rash to severe skin ulcers. Others may develop allergic dermatitis after prolonged or repeated contact with wet cement products. When working with wet cement, wear water-impervious gloves and boots. Remove clothing if it becomes wet, immediately wash exposed skin with soapy water. When the job is finished, wash boots, gloves, and clothing with soapy water.

DRY CONCRETE: Respirable crystalline silica (quartz) is a primary hazard. Crystalline silica is bound in the block matrix. Concrete in its intact state will not release airborne dust. Dust can be generated during cutting, drilling, grinding, chiseling, crushing or other machining of the product. The generated dust will contain respirable crystalline silica. When exposed to airborne dusts, use appropriate ventilation controls, and/or dust suppression measures (e.g., water streams or mists) and personal protective equipment (PPE) as described in section 8.

Potential Health Effects:

- Relevant routes of exposure are: EYE CONTACT and SKIN CONTACT (wet) and INHALATION (dry)

Effects Resulting From EYE CONTACT:

Exposure to wet 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 and medical attention to prevent significant damage to the eye.

Effects Resulting From 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 to moist or wet concrete may cause more severe skin effects including thickening, cracking, fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

Effects Resulting From INHALATION:

Concrete may contain amounts of crystalline silica. Prolonged exposure to respirable free crystalline silica may aggravate other lung conditions. It may also cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or other diseases. (Also see "Carcinogenic Potential" below.)

Respirable exposure to silica in concrete may occur only if concrete is drilled, cut, ground or polished. Exposure to concrete dust may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. The dust may also leave unpleasant deposits in the nose.

Effects Resulting From INGESTION:

Ingesting small amounts of concrete is not known to be harmful, but ingestion of large amounts can cause digestive tract distress and discomfort.

- **Chronic Effects**

Some individuals may exhibit an allergic response upon exposure to ready-mix 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. Others may first experience this effect after years of contact with ready-mix concrete. Minimizing contact with skin is the basic protection to reduce this exposure.

- **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 those organizations.

Crystalline silica, a potential trace level contaminant in portland cement, is found in the aggregate components in varying percentages and is classified by IRAC as a known human carcinogen (Group 1). NTP has characterized respirable silica as "reasonably anticipated to be [a] carcinogen".

- **Medical Conditions That May Be Aggravated By Inhalation or Dermal Exposure:**

- ◇ Pre-existing upper respiratory and lung diseases.
- ◇ Previous exposure to dust from hardened product.
- ◇ Unusual or "hyper" sensitivity to hexavalent chromium (chromium +6) salts.
- ◇ Skin allergies or dry, cracked skin conditions.

SECTION 4 – FIRST AID MEASURES

- **Eyes**

Do not rub eyes. Immediately flush eyes thoroughly with water. Continue flushing for 15 minutes, including under the lids to remove all particles. Seek medical attention immediately. It may take 2 to 3 days to assess the condition of eyes.

- **Skin**

Wash skin with water and pH neutral soap or mild detergent intended for use on skin. If clothing or footwear is saturated remove immediately and wash area with water and mild soap. If contact has been severe enough to cause reddening or actual burns to skin, place sterile bandage on area and seek medical attention.

- **Inhalation**

In wet form, concrete cannot be inhaled. Move person to fresh air. Seek medical attention for discomfort or if coughing and other symptoms do not subside.

- **Ingestion**

In wet form, concrete is unlikely to be ingested. If concrete enters mouth, wash out with water immediately. Seek medical attention if any burning sensation or actual burns occur.

SECTION 5 – FIRE EXPLOSION DATA / FIRE FIGHTING MEASURES

| | | | |
|--|----------------|---|----------------|
| Flammability: | Not Flammable | Flash Point: | Not Applicable |
| Lower Explosive Limit: | Not Applicable | Upper Explosive Limit: | Not Applicable |
| Auto ignition Temperature: | Not Applicable | Sensitivity To Static Discharge: | Not Applicable |
| Sensitivity To Impact: | Not Applicable | Extinguishing Media: | Not Applicable |
| Special Fire-Fighting Procedures: | None | Hazardous Combustion Products: | Not Applicable |
| Unusual Fire And Explosion Hazards: | Not Applicable | | |

NFPA / HMIS HAZARD CLASSIFICATION:

HEALTH – 3

FLAMMABILITY – 0

REACTIVITY – 0

SECTION 6 – STABILITY & REACTIVITY

| | |
|----------------------------------|---|
| Stability: | Stable |
| Incompatibility: | Portland cement reacts with water to produce a caustic solution, pH 12 to pH 13. Wet concrete is alkaline. As such it is incompatible with acids, ammonium salts, and aluminum metal. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Concrete dissolves in hydrofluoric acid producing corrosive silicon tetrafluoride gas. Silicates react with powerful oxidizers such as fluorine, chlorine, trifluorides, and oxygen difluoride. |
| Hazardous Decomposition: | Will not occur. |
| Hazardous Polymerization: | Will not occur. |

SECTION 7 – HANDLING & STORAGE

Normal temperatures and pressures do not affect the material.

Concrete is heavy and may pose hazards such as sprains and strains to the back, legs, arms and shoulders during lifting. Make sure surfaces/forms are properly secured and have adequate load bearing capacity before placing product on/in them.

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

Ready-Mix Concrete is premixed at a plant or in a truck mixer drum and delivered to the end user in semi-fluid state ready to be placed to set in final form. Machining hardened concrete will release respirable dust; use appropriate PPE described in the following section.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls:

Use local exhaust or general dilution ventilation or other wet suppression methods to maintain dust levels below exposure limits.

Eye Protection:

Safety glasses with side shields, or goggles, should be worn when engaged in activities where cement dust, wet cement, or concrete could contact the eye. 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 with ready mix concrete or fresh concrete products.

Skin Protection:

Prevention is essential to avoid potentially severe skin injury. Avoid contact with unhardened (wet) concrete products. If contact occurs, promptly wash affected area with soap and water. Wear impervious clothing and gloves to eliminate skin contact where prolonged exposure to unhardened ready mix concrete products might occur. Wear boots that are impervious to water to eliminate foot and ankle exposure. If standing in wet concrete rubber boots must be worn to prevent injury.

Do not rely on barrier creams; barrier creams should not be used in place of gloves.

Wet concrete may splash into open boot tops and saturate socks and remain in contact for a lengthy period of time. Prevention is to ensure that boots are fully laced up.

Periodically wash areas in contact with dry portland cement, wet cement, or concrete fluids with a pH-neutral soap. Wash again at the end of workday. If irritation occurs, immediately wash the affected area and seek treatment. Clothing saturated with wet concrete should be removed immediately and replaced with clean, dry clothing. Do not allow clothing saturated with wet concrete to remain in contact with skin for any period of time.

Respiratory Protection:

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

Use NIOSH/MSHA-approved (under 30 CFR 11) or NIOSH-approved (under 42 CFR 84 after July 10, 1998) respirators in poorly ventilated areas, if an applicable exposure limit is exceeded, or when dust causes discomfort or irritation.

SECTION 9 – PHYSICAL & CHEMICAL PROPERTIES

| | | | |
|---|--------------------------------|--------------------------|--------------------------------|
| Appearance: | Gray fluid / hydraulic mixture | Odor: | No distinct odor |
| Odor Threshold: | Not applicable | Physical State: | Liquid or solid (powder) |
| pH (as a solid): | Not applicable | pH (wet): | 12 to 13 |
| Solubility in Water: | Not applicable | Vapor Pressure: | Not applicable |
| Vapor Density: | Not applicable | Boiling Point: | Not applicable (i.e., >1000°C) |
| Freezing Point: | Not applicable | Melting Point: | Not applicable |
| Specific Gravity (H₂O = 1.0): | 2 – 3 | Evaporation Rate: | Not applicable |
| Coeff. Water/Oil Dist.: | Not applicable | Viscosity: | Variable, paste-like |
| Percent solids (dry, by wt.): | 100 % | Percent Volatile: | 0 % |

SECTION 10 – TOXICOLOGICAL INFORMATION**Effects Of Acute Exposure:**

Wet concrete mixtures can dry the skin, cause alkali burns, and irritate the eyes and upper respiratory tract. Ingestion can cause irritation of the throat.

Effects Of Chronic Exposure:

Dust from concrete can cause inflammation/irritation of the tissue lining the interior of the nose and the cornea (white) of the eye.

SECTION 11 – DISPOSAL & ACCIDENTAL RELEASE

Dispose of waste material according to Local, Provincial, State, and Federal regulations. Dispose in an approved landfill.

Since dry concrete is stable, allow material to dry or solidify before disposal. Place spilled material or broken, hardened pieces in suitable containers for disposal.

Do not wash concrete down sewage and drainage systems or into bodies of water.

SECTION 12 – TRANSPORT INFORMATION

| | |
|---|--|
| Hazardous materials description/ proper shipping name: | Ready-Mix Concrete is not hazardous under the TDG Act (Canada) or DOT regulations (USA). |
| Hazard Class: | Not applicable. |
| Identification Number: | Not applicable. |
| Required Label Text: | Not applicable. |
| Hazardous substances/reportable quantities (RO): | Not applicable. |

SECTION 13 – REGULATORY INFORMATION

Status under USDOL-OSHA Hazard Communication Rule, 29 CFR 1910.1200:

Ready-Mix Concrete is considered a "hazardous chemical" under this regulation and should be part of any hazard communication program.

Status under CERCLA/Superfund, 40 CFR 117 and 302:

Not listed.

Hazard Category under SARA (Title III), Sections 311 and 312:

Ready-Mix Concrete qualifies as a "hazardous substance" with delayed health effects.

Status under SARA (Title III), Section 313:

Not subject to reporting requirements under Section 313.

Status under WHMIS:

Portland cement is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

This product has been classified in accordance with the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

SECTION 14 – OTHER INFORMATION

Ready-Mix Concrete should only be used by knowledgeable persons. 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, during the setting stage, are the cause of the hazards when handling this product.

While the information provided in this material safety data sheet (MSDS) is believed to provide a useful summary of the hazards of concrete, as it is 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 MSDS does not address hazards that may be posed by other materials mixed with concrete. Users should review other relevant material safety data sheets before working with concrete or working with products containing portland cement.

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