SECTION 1 - PRODUCT AND COMPANY IDENTIFICATION

Manufacturer’s Name and Address: Boxley, 3830 Blue Ridge Drive, Roanoke, VA 24018

Product Name: Ready Mix Concrete, Pre-Mixed Concrete, Transit Mixed Concrete. Freshly Mixed Unhardened Concrete, Portland Cement with Sand and Stone, Portland Cement Concrete.

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

Components: This product consists of Portland cement, flyash, sand, aggregate, and admixtures, individual compositions of constituents will vary within the mix design ranges.

Emergency Contact Information: Boxley
Sam Woolwine (540) 777-7600

SECTION 2 - COMPOSITION/INFORMATION ON INGREDIENTS

Ready Mix Concrete Ingredients & Their Exposure Limits:

<table>
<thead>
<tr>
<th>Chemical Entity/Ingredient</th>
<th>CAS No:</th>
<th>% of Mix</th>
<th>OSHA PEL – TWA (mg/m3)</th>
<th>ACGIH TLV-TWA (mg/m3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>65997-15-1</td>
<td>10 to 30</td>
<td>15(T); 5(R)</td>
<td>10(R)</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>68131-74-8</td>
<td>0 to 30</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Aggregate &amp; Sand</td>
<td>65997-15-1</td>
<td>50 to 75</td>
<td>15(T); 5(R)</td>
<td>10(T); 3(R)</td>
</tr>
</tbody>
</table>

Note:
Cements and sand and aggregate 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 may contain crystalline silica. **Wet stage poses no risk or hazard.**

Emergency Overview:
Concrete is a light gray fluid mixture that poses an immediate hazard to eye tissue. Exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree burns.

If footwear or clothing becomes saturated with wet concrete, remove immediately and wash area with water and mild soap. Do not allow prolonged contact.
Potential Health Effects:

- Relevant routes of exposure are:
  - EYE CONTACT, SKIN CONTACT, INHALATION, AND INGESTION

**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:**

This product is normally mixed, transported, and used only when wet. This reduces the potential for dust exposure. After the product has dried and hardened, further handling or processing may generate dust. Concrete dust 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:**

Ingestion of small quantities of Ready-Mix Concrete is not known to be harmful. If ingested in large quantities it may cause chemical (caustic) burns in the mouth, throat, stomach, and digestive tract.

- **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/sand 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.

SECTION 4 – FIRST AID MEASURES

• Eyes

Immediately rinse eye(s) with gently running lukewarm water (saline solution is preferred) for at least 15 minutes, while holding the eyelid(s) open. In case of an embedded particle in the eye, or if irritation occurs or persists, seek medical attention from a physician. Beyond flushing, do not attempt to remove materials from the eye(s).

• 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. If dry inhalation occurs, move person to fresh air and seek medical attention for discomfort or if coughing or other symptoms do not subside. If victim does not breathe, give artificial respiration and contact a physician immediately.

• Ingestion

In wet form, concrete is unlikely to be ingested. If concrete enters mouth and if victim is conscious, wash out mouth with water immediately. Then have conscious person drink several glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious or convulsing person. Seek medical attention from a physician if any burning sensation or actual burns or other symptoms occur.

• General Advise

Consult a physician for all exposures when symptoms persist

SECTION 5 – FIRE EXPLOSION DATA / FIRE FIGHTING MEASURES

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flammability</td>
<td>Not Flammable</td>
</tr>
<tr>
<td>Lower Explosive Limit</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Auto ignition Temperature</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Sensitivity To Impact</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Special Fire-Fighting Procedures</td>
<td>None.</td>
</tr>
<tr>
<td>Unusual Fire And Explosion Hazards</td>
<td>Not Applicable.</td>
</tr>
<tr>
<td>Flash Point</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Upper Explosive Limit</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Sensitivity To Static Discharge</td>
<td>Not Applicable.</td>
</tr>
<tr>
<td>Extinguishing Media</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Hazardous Combustion Products</td>
<td>Not Applicable.</td>
</tr>
</tbody>
</table>
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.

Normal temperatures and pressures do not affect the material.

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.

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.

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.

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

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.

**Ventilation:**

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

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**SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appearance</td>
<td>gray fluid / hydraulic mixture</td>
</tr>
<tr>
<td>Odor Threshold</td>
<td>Not applicable</td>
</tr>
<tr>
<td>pH (as a solid)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Solubility In Water:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapor Density</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Freezing Point</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Specific Gravity (H₂O = 1.0):</td>
<td>3.15</td>
</tr>
<tr>
<td>Coeff. Water/Oil Dist.:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Odor:</td>
<td>No distinct odor</td>
</tr>
<tr>
<td>Physical State:</td>
<td>Solid (powder)</td>
</tr>
<tr>
<td>pH:</td>
<td>12 to 13</td>
</tr>
<tr>
<td>Vapor Pressure:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Boiling Point:</td>
<td>Not applicable (i.e., &gt;1000°C)</td>
</tr>
<tr>
<td>Melting Point:</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Evaporation Rate:</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

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**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.

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**SECTION 11 - ECOLOGICAL INFORMATION**

**Ecotoxicity:**

No recognized unusual toxicity to plants or animals.

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**SECTION 12 - DISPOSAL CONSIDERATIONS**

Dispose of waste material according to local, provincial, state, and federal regulations. (Since set concrete is stable, allow material to harden).

Dispose in an approved landfill.
SECTION 13 - TRANSPORT INFORMATION

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

SECTION 14 - 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:**

This product has been reviewed according to the EPA Hazard Categories promulgated under section 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard. This product is not subject to reporting requirements under Section 313.

**Status under TSCA (as of May 1997):**

Some substances in Ready Mix Concrete are on the TCSA inventory list. Portland Cement and crystalline silica are exempt from reporting under the inventory update rule.

**Status under the Federal Hazardous Substances Act:**

Ready Mix Concrete is a “hazardous substance” subject to statutes promulgated under the subject act.

**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.
Other Important Information:

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

While the information provided in this material safety data sheet 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 sheet 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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