Safety Data Sheet for Ready Mixed Concrete

Section 1 - Identification

Material:	Ready Mixed Concrete (Concrete)
Manufacturer:	Boxley Materials Company
Address:	PO Box 13527, Roanoke, VA 24035
For Information Call:	540-777-7600
In Case of Emergency Call:	540-815-8982

Recommended use: Concrete is widely used as a structural component in many construction applications. This SDS covers several types of Concrete. Individual composition of hazardous ingredients may vary between different mix designs of Concrete.

Other Names: Ready Mixed Concrete, Portland Cement Concrete, Ready Mixed Grout, Permeable Concrete, Gunite, Shotcrete, Fiber Reinforced Concrete, Flowable Fill, Roller-Compacted Concrete, Colored Concrete, Pre-Mixed Concrete, Transit Mixed Concrete.

Section 2 – Hazard Identification

WARNING

Corrosive – Causes Severe Burns

Toxic – Harmful by Inhalation

(may contain crystalline silica)

Use proper engineering controls, work practices, and personal protective equipment (PPE) to prevent exposure to wet or dry product. ***Read SDS for details.***

HAZARD NOTES: Unhardened concrete is an odorless semi-fluid, flowable, granular paste of varying color and texture. It is not combustible, or explosive. Exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin, eyes, respiratory tract) damage due to chemical burns, including third degree burns.

Section 3 – Information on Ingredients

Hazardous Components

Chemical Identity /Common Names	CAS No	OSHA PEL	ACGIH- TLV	MSHA PEL	%
Portland Cement	65997-15-1	5 mg/m^3 (Respirable) 15 mg/m^3(Total)	10 mg/m^3 (Total)	10 mg/m^3	10-30 %
Limestone ($CaCo_3$)	1317-65-3	15 mg/m^3(Total)	10 mg/m^3 (Total)	10 mg/m^3	0-65 %
Crystalline Silica (Quartz)	14808-60-7	$\frac{10\ mg/m^3}{\%\ SiO_2+2}\ (Respirable)$ $\frac{30\ mg/m^3}{\%\ SiO_2+2}\ (Total\ Du$	0.05 mg/m^3 (Total)	(Total) $\frac{30}{(\%\ SiO_2+2)\ mg/m^3}$ (Respirable Particulate) $\frac{10}{(\%\ SiO_2+2)\ mg/m^3}$	0.5-80 %
Other Particulates		5 mg/m^3 (Respirable) 15 mg/m^3(Total)	10 mg/m^3 (Inhalable) 3 mg/m^3 (Respirable)	10 mg/m^3	0-100 %
Aluminum Oxide (Al_2O_3)	1344-28-1	5 mg/m^3 (Respirable) 15 mg/m^3 (Total)	10 mg/m^3	10 mg/m^3	0.1-2 %
Amorphous Silica	61790-53-2	(80 mg/m^3)/(% SiO_2)	10 mg/m^3 (Total) 3 mg/m^3 (Respirable)	20 mppcf	0.01-3 %
Calcium Oxide (CaO)	1305-78-8	5 mg/m^3	2 mg/m^3	5 mg/m^3	0-1 %
Iron Oxide (Fe_2O_3)	1309-37-1	10 mg/m^3	10 mg/m^3	10 mg/m^3	0.1-2 %

Note: Chemical admixtures may be present in quantities less than 1 %.

Trace Materials: Due to the use of substances from the earth's crust, trace amounts of naturally occurring, potentially harmful substances may be detected during chemical analysis. Portland cement may contain trace (<0.05%) amounts of chromium salts or compounds (including hexavalent chromium) or other metals (including nickel compounds, lead, and mercury) found to be hazardous or toxic in some forms. Other trace elements may include potassium and sodium sulfate compounds and others.

Section 4 – First Aid

Eye Contact – Rinse eyes with fresh clean water for at least 15 minutes, including under eyelids, to remove all particles. Seek medical attention for abrasions and burns.

Skin Contact – Wash with cool water and a pH neutral soap or mild detergent. Seek medical attention for rash, burns, irritation, dermatitis, and prolonged unprotected exposure to wet concrete.

Inhalation – Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Ingestion – Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control immediately.

Section 5 – Firefighting Measures

Flash Point: Not Combustible
Flammable Limits: Not Flammable
LEL: N/A
UEL: N/A
Extinguishing Media: This material is noncombustible. Use extinguishing media suitable for surrounding fire.
Unusual Fire and Explosion Hazards: None reported.

Section 6 – Accidental Release Measures

Section 7 – Handling and Storage

Handling – When cutting, grinding, crushing, or drilling hardened concrete, use local exhaust or general dilution ventilation or other dust suppression methods to maintain dust levels below exposure limits.

Engineering Controls – Supplemental controls are not required when working with wet or hardened concrete.

Section 8 – Exposure Controls and Personal Protective Equipment

Respiratory Protection – When exposed to dust from cutting, grinding, crushing, or drilling hardened concrete or concrete products above recommended limits, wear a suitable NIOSH - approved respirator with a protection factor appropriate for the level of exposure. For emergency or non-routine operations (e.g., confined spaces), additional precautions or equipment may be required. Respirator use must comply with applicable OSHA or MSHA standards.

Local Exhaust Ventilation – When cutting, grinding, crushing, or drilling hardened concrete, provide general or local exhaust ventilation systems as needed to maintain airborne dust concentrations below the OSHA PELs, MSHA PELs, and ACGIH TLVs.

Other – Respirable dust and quartz levels from hardened concrete cutting, grinding, crushing, or drilling operations should be monitored regularly. Dust and quartz levels in excess of applicable OSHA PELs, MSHA PELs, and ACGIH TLVs should be reduced by all feasible engineering controls.

Mechanical (General) – See above recommendations.

Special – None reported.

Protective Gloves – When handling wet unhardened concrete, wear waterproof gloves to prevent skin contact. Wash thoroughly with water and a pH-neutralizing soap after handling.

Eye Protection – When cutting, grinding, crushing, or drilling hardened concrete wear safety glasses with side shields or dust goggles in dusty environments. When there is a splash hazard working with wet unhardened concrete, wear safety glasses with side shields or goggles.

Other Protective Clothing or Equipment – Wear

Work/Hygiene Practices – Contact

Section 9 – Physical and Chemical Properties

Boiling Point:	Not Applicable	**pH** (as a solid):	Not Applicable
Freezing Point	Not Applicable	**pH:**	**12 to 13**
Vapor Pressure (mm Hg):	Not Applicable	**Melting Point:**	Not Applicable
Vapor Density (Air = 1):	Not Applicable	**Evaporation Rate:**	Not Applicable
Solubility in Water:	Not Soluble	**Physical State:**	Solid (powder)
Specific Gravity (H_2O = 1):	Wet Concrete 1.9 – 2.4		

Appearance and Odor: Hardened concrete products are odorless, solid materials. Unhardened wet concrete is an odorless gray, plastic, flowable, granular mud of varying color and texture.

Section 10 – Stability and Reactivity

Stability: Stable

Incompatibility: Portland cement reacts with water to produce a caustic solution, pH 12 to pH13. 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 and Polymerization: Will not occur.

Section 11 – 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 12 – Ecological Information

Ecotoxicity: No recognized unusual toxicity to plants or animals.

Section 13 – Disposal Considerations

Fresh Concrete: subject to local regulations.
Hardened Concrete: can be recycled. Inert. Disposal subject to local regulations.

Section 14 – Transport Information

USDOT Class: Uncontaminated ready mixed concrete does not meet any hazardous material class definition found in Title 49 Code of Federal Regulations Part 173.

Section 15 – Regulatory Information

Section 16 – Other 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 state, 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 product containing Portland Cement.

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