



MATERIAL SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Ready-Mix Concrete, Freshly-Mixed Concrete, Pre-Mixed Concrete, Unhardened (wet) Concrete, Plastic Concrete, Flow-able Fill, Self Consolidating Concrete, Fiber Reinforced Concrete, Curb Mix, Permeable Concrete, Ready Mix Grout, Ready Mix Stucco

CAS No: N/A

Product Use: Ready-Mix Concrete is a component for structural and civil construction applications.

Manufacturer: AVR Inc.
14698 Galaxie Ave.
Apple Valley, MN 55124

Emergency Contact Information: AVR Safety Dept.
(952) 432-7132

SECTION 2: COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Component	CAS No.	Percentage of Mix	(T)=Total Dust (R)=Respirable Dust	
			OSHA PEL – TWA (mg/m ³)	ACGIH TLV – TWA (mg/m ³)
Portland Cement	65997-15-1	10 - 30	15.0 (T) 5.0 (R)	10.0 (R)
Sand	87347-84-0	20 - 40	10.0 (T)	10.0 (T) 5.0 (R)
Crushed Rock/Aggregate	NA	40 - 50	NA	NA
Fly Ash	68131-74-8	10 - 30	NA	NA
Crystalline Silica	14808-60-7	0.01- 5.0	[(10) / (%SiO ₂ +2)] (R) [(30) / (%SiO ₂ +2)] (T)	2.0 (T) 0.05 (R)

SiO₂ = Silicon Dioxide

Note:

Wet (unhardened) concrete does not pose a respiratory hazard to users, because there is no associated dust. Therefore the exposure limits listed above would generally not apply at the time of delivery.

The respiratory risk to concrete's hazardous chemical components occurs when work is performed on hardened concrete (i.e.: grinding, drilling, milling, etc.). This type of work generates airborne dust which could be inhaled if appropriate personal protective equipment is not used.

SECTION 3: HAZARD IDENTIFICATION

Emergency Overview:

Unhardened concrete is a naturally gray, odorless, semi-fluid, flowable, granular paste. Various admixtures may be added (comprising less than 1% of the materials), to alter its appearance or qualities.

Exposure of sufficient duration to wet concrete can cause serious, potentially irreversible tissue (skin, eye, respiratory tract) damage due to chemical (caustic) burns, including third-degree burns. Do not allow prolonged contact with wet concrete. Flush eyes with water immediately, and wash affected areas of skin with mild soap and water.

Potential Health Effects:

- **Eyes:** Eye contact with wet concrete can cause mild to moderate irritation; or severe chemical burns and blindness. Eye exposures require immediate first-aid or medical attention to prevent significant damage.
- **Skin:** Exposure of sufficient duration to wet concrete can cause varying reactions, ranging from mild irritation/dermatitis, to serious and potentially irreversible skin damage from caustic chemical burns.
- **Inhalation:** Wet (unhardened) concrete poses no inhalation or respiratory hazard. However varying degrees of damage and/or illness are possible with prolonged exposure to dust generated by working with hardened concrete (i.e.: grinding, drilling, milling). Damaging effects include acute chemical burns from moisture mixing with concrete dust within the respiratory track; to chronic illnesses (i.e.: Silicosis) from crystalline silica dust becoming embedded in the lungs.
- **Ingestion:** Do not ingest concrete. Although small quantities of concrete are not known to be harmful, chemical burns can occur to any part of the digestive track in contact with concrete.

SECTION 4: FIRST-AID MEASURES

Eyes: Immediately flush eyes with clean water for 15 minutes, including under the eyelids. Seek medical attention for abrasions and burns.

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

Inhalation: None; wet (unhardened) concrete can not be inhaled.

Ingestion: Do not induce vomiting. Rinse mouth immediately, and seek medical attention as appropriate.

SECTION 5: FIRE FIGHTING MEASURES

Flammability:	N/A	Flash Point:	N/A
Lower Explosive Limit:	N/A	Upper Explosive Limit:	N/A
Auto Ignition Temp.:	N/A	Sensitivity To Static Discharge:	N/A
Sensitivity To Impact:	N/A	Extinguishing Media:	N/A
Special Fire Fighting Procedures	N/A	Hazardous Combustion Products:	N/A
Unusual Fire or Explosion Hazards:	N/A		

SECTION 6: STABILITY AND REACTIVITY

Stability: Stable

Incompatibility: Portland cement reacts with water to produce a caustic solution of pH12 to pH13. Wet concrete is alkaline; and therefore 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 tetrafluorides gas. Silicates react with powerful oxidizers such as fluorine, chlorine, trifluorides, and oxygen difluoride.

SECTION 7: STORAGE AND HANDLING

Normal temperatures and pressures do not affect the material.

Promptly remove and launder clothing that is either wet with concrete, or contains concrete dust from working on hardened concrete. Thoroughly wash exposed or affected skin.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

Eyes: Wear ANSI approved safety glasses or goggles when handling wet concrete, to prevent contact with eyes caused by concrete splatter. Contact lenses should not be worn when working with wet concrete products.

Skin: Wear impervious (water resistant) gloves, boots, and protective clothing when handling wet concrete. Gloves must be constructed of adequate thickness and quality to withstand abrasive and chemical properties encountered when handling wet concrete. Promptly wash any exposed or affected skin. Barrier crèmes are not adequate primary protection when handling wet concrete. They are designed for incidental skin contact, or secondary protection from dermatitis, chemical burns, etc.

Inhalation: Wet (unhardened) concrete does not require respiratory protection. Wear a NIOSH approved respirator that is properly fitted and in good condition when exposed to dust created from working on hardened concrete (i.e.: grinding, drilling, milling, etc.).

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Semi-fluid, granular paste	Evaporation Rate:	N/A
Appearance:	Usually gray	pH:	12 – 13
Odor:	No distinct odor	Boiling Point:	N/A
Vapor Pressure:	N/A	Freezing Point:	N/A
Vapor Density:	N/A	Viscosity:	Varies
Specific Gravity:	1.9 – 2.4	Solubility in Water:	Slightly (0.1% – 1.0%)

SECTION 10: TOXICOLOGICAL INFORMATION

Effects of Acute Exposure:

Wet (unhardened) concrete can dry the skin, cause alkali burns, and irritate the eyes. Depending upon contact duration, it's caustic properties can cause damage to unprotected areas.

Effects of Chronic Exposure:

Inhaled dust from hardened concrete (generated by drilling, grinding, milling, etc.) can cause severe respiratory injury or illness.

SECTION 11: ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

SECTION 12: DISPOSAL CONSIDERATIONS

Concrete is a stable material. Allow wet concrete to harden, then dispose material in accordance to Federal, State, and Local laws.

Do not dump wet concrete or any associated wash-water into storm drains or water-ways. Do not allow wet concrete to come in contact with water that would potentially enter the storm sewer system.

SECTION 13: TRANSPORTATION INFORMATION

Ready mix concrete is not a classified Hazardous Material under U.S. DOT or Canadian TDG regulations.

SECTION 14: REGULATORY INFORMATION

OSHA/MSHA Hazard Communication:	This product is considered by OSHA/MSHA to be a hazardous chemical, and should be included in the employer's hazard communication program.
CERCLA / Superfund:	This product is not listed as a CERCLA hazardous substance.
EPCRA SARA Title III (311 and 312):	This product has been reviewed according to the EPA Hazard Category's and is considered a hazardous substance with delayed health effects.

SECTION 14: REGULATORY INFORMATION (CONTINUED)

EPCRA SARA III (Section 313):	This product is not subject to the reporting requirements under section 313.
RCRA:	Not a hazardous waste if discarded in purchased form. However the user is responsible for determining at the time of disposal, whether a material containing or derived from the product should be classified as hazardous waste.
TSCA:	Portland cement and crystalline silica are exempt from reporting under the inventory update rule.
California Proposition 65:	Crystalline silica (airborne particulates of respirable size) and Chromium (hexavalent compounds) are substances known by the state of California to cause cancer.
WHMIS / DSL:	Products containing crystalline silica and calcium carbonate are classified as D2A, E and are subject to WHMIS requirements.

SECTION 15: OTHER INFORMATION

ACGIH	Am Conf. of Gov. Ind. Hygienists	PEL	Permissible Exposure Limit
CAS No	Chemical Abstract Service number	pH	Negative log of hydrogen ion
CERCLA	Comp. Environmental Response, Compensation and Liability Act	R	Respirable Particulate
DOT	Dept. of Transportation	RCRA	Resource Conservation and Recovery Act
mg/m³	Milligrams per cubic meter	SARA	Superfund Amendments and Reauthorization Act
MSHA	Mine Safety and Health Administration	T	Total Particulate
N/A	Not Applicable	TLV	Threshold Limit Value
NIOSH	Nat. Inst. for Occ. Safety and Health	TWA	Time Weighted Average (8 hour)
OSHA	Occupational Safety and Health Admin.	WHMIS	Workplace Hazardous Materials Information System

Concrete should only be used by knowledgeable persons. Using the product safely requires the recognition 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 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 products containing Portland cement.

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