

# MATERIAL SAFETY DATA SHEET

## FOR READY MIX CONCRETE PRODUCTS

Section 1 – Product Identification	
Material Identity (Trade Names): Ready Mix Concrete - Grout - Flowable Fill	
Manufacturer: Silver State Materials	Emergency Phone: 893-2953
Address: 4005 Industrial Road Las Vegas, NV 89103	

### Section 2 – Hazardous Ingredients/Identity Information

Hazardous Components:	CAS No.	OSHA PEL	ACGIH TLV	MSHA PEL	%
Portland Cement	65997-15-1	15mg/m <sup>3</sup> (total)	10mg/m <sup>3</sup> (total)	10mg/m <sup>3</sup> (total)	10-30%
Limestone (CaCO <sub>3</sub> ) (Calcium Carbonate present with limestone aggregates)	1317-65-3	15mg/m <sup>3</sup> (total)	10mg/m <sup>3</sup> (total)	10mg/m <sup>3</sup> (total)	0-65%
Crystalline Silica (Quartz)	14808-60-7	30% SiO <sub>2</sub> +2 mg/m <sup>3</sup> (total particulate)  10% SiO <sub>2</sub> +2 mg/m <sup>3</sup> (respirable)	0.1mg/m <sup>3</sup> (total respirable quartz)	30% SiO <sub>2</sub> +2 mg/m <sup>3</sup> (total particulate)  10% SiO <sub>2</sub> +2 mg/m <sup>3</sup> (respirable)	0.5-80%
Particulates not otherwise classified		15mg/m <sup>3</sup> (total)  5mg/m <sup>3</sup> (respirable)	10mg/m <sup>3</sup> (inhalable)  3mg/m <sup>3</sup> (respirable)	10mg/m <sup>3</sup> (total)	0-85%
Fly Ash which contains:	68131-74-8	N/A	N/A	N/A	0-6%
Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	1344-28-1	15mg/m <sup>3</sup> (total)  5mg/m <sup>3</sup> (respirable)	10mg/m <sup>3</sup>	10mg/m <sup>3</sup>	0.1-2%
Amorphous Silica	61790-53-2	80mg/m <sup>3</sup> (%SiO <sub>2</sub> )	10mg/m <sup>3</sup> (inhalable)  3mg/m <sup>3</sup> (respirable)	20mppcf	0.01-3%
Calcium Oxide (CaO)	1305-78-8	5mg/m <sup>3</sup>	2mg/m <sup>3</sup>	5mg/m <sup>3</sup>	0-1%
Iron Oxide (as Fe <sub>2</sub> O <sub>3</sub> )	1309-37-1	10mg/m <sup>3</sup>	10mg/m <sup>3</sup>	10mg/m <sup>3</sup>	0.1-2%

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

### Section 3 – Physical/Chemical Characteristics

<b>Boiling Point</b>	Not Applicable	<b>Specific Gravity</b>	1.9 to 2.4 (wet concrete)
<b>Vapor Pressure</b>	Not Applicable	<b>Melting Point</b>	Not Applicable
<b>Vapor Density</b>	Not Applicable	<b>Evaporation Rate</b>	Not Applicable
<b>Solubility in Water:</b> Not Soluble			
<b>Appearance and Odor:</b> Unhardened wet concrete is an odorless gray, plastic, flowable, granular mud of varying color and texture.			

### Section 4 – Fire and Explosion Hazard Data

<b>Flash Point:</b> Not Combustible	<b>Flammability Limits:</b> Not Flammable	<b>LEL:</b> N/A	<b>UEL:</b> N/A
<b>Extinguishing Media:</b> This material is non-combustible. Use extinguishing media appropriate to surrounding fire.			
<b>Unusual Fire and Explosion Hazard:</b> None Reported			

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Section 5 – Reactivity Data
<b>Stability:</b> Wet unhardened concrete sets in 2-8 hours and is no longer hazardous.
<b>Hardened concrete is stable. Conditions to avoid:</b> do not allow wet unhardened concrete to harden on tools or surfaces. Product hardens in 2-8 hours.
<b>Incompatibility (Materials to avoid):</b> Stable under expected conditions of use. Under unanticipated conditions of use, crystalline silica may react with hydrofluoric acid to produce a corrosive gas (silicon tetrafluoride). Aluminum powder and other alkali and alkaline earth metals will react with wet mortar or concrete, liberating hydrogen gas.
<b>Hazardous Decomposition or Byproducts:</b> Thermal oxidative decomposition of CaCO <sub>3</sub> (limestone) can produce lime (CaO). The lime does not add to the hazards associated with the use of the product.
<b>Note: Hazardous polymerization will not occur.</b>

Section 6 – Health Hazard Data				
<table border="0" style="width: 100%;"> <tr> <td style="width: 25%;"><b>Routes(s) of Entry:</b></td> <td style="width: 25%;"><b>Inhalation?</b> Yes</td> <td style="width: 25%;"><b>Skin?</b> No</td> <td style="width: 25%;"><b>Ingestion?</b> Unlikely</td> </tr> </table>	<b>Routes(s) of Entry:</b>	<b>Inhalation?</b> Yes	<b>Skin?</b> No	<b>Ingestion?</b> Unlikely
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<p><b>Health Hazards:</b></p> <p><b>Acute Effects:</b> Skin contact with wet concrete can dry the skin and cause alkali burns. Within 12 to 48 hours after skin contact (after 1 to six-hour exposures), first, second, or third degree burns may occur. There may be no obvious pain at the time of exposure. Eye contact with wet unhardened concrete may cause burning and possible corneal edema. Ingestion of concrete dust may cause esophagus and stomach burns.</p> <p>Cutting, grinding, crushing or drilling hardened concrete or concrete products may generate dust containing crystalline silica. Acute effects of exposure to such dust may include:</p> <p><b>Eye Contact:</b> Direct contact with dust may cause irritation by mechanical abrasion.</p> <p><b>Skin Contact:</b> Direct contact may cause irritation by mechanical abrasion.</p> <p><b>Skin Absorption:</b> Not expected to be a significant route of exposure.</p> <p><b>Ingestion:</b> Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation and blockage.</p> <p><b>Inhalation:</b> Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing and shortness of breath may occur following exposures in excess of recommended exposure limits. Use of concrete products for purposes is not believed to cause additional acute toxic effects. However, repeated overexposures to very high levels of crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months have caused acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to) shortness of breath, cough, fever, weight loss, and chest pain.</p> <p><b>Chronic Effects:</b> Continued exposure of the skin to wet unhardened concrete may cause chronic dermatitis.</p> <p>Chronic bronchitis may result from chronic exposure to dust generated from cutting, grinding, crushing, or drilling hardened concrete. Chronic exposure to respirable limestone dust in excess of the ACGIH TLV has caused pneumoconiosis (Dusty Lung). Concrete dust may contain more than 0.1% crystalline silica that is a cancer hazard if inhaled. Cancer risk depends on duration and level of exposure. Prolonged exposure to crystalline silica can cause silicosis, a progressive pneumoconiosis (lung disease). Respirable dust containing newly broken silica particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken particles of silica.</p> <p>There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with adverse health effects involving the kidney, scleroderma and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed silicosis; and therefore, this evidence does not conclusively prove a causal relationship between silica or silicosis and these adverse health effects. Several studies of persons with silicosis also indicate an increased risk in developing lung cancer, a risk that increases with duration of exposure. Many of these studies of silicosis do not account for lung cancer confounders, especially smoking.</p>				

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## Section 6 – Health Hazard Data (continued)

**Carcinogenicity:** Concrete products are not listed on the NTP, IARC or OSHA list of carcinogens. However, in October 1996, IARC classified respirable crystalline silica from occupational sources as a known human carcinogen (Group 1). The NTP indicates that crystalline silica is reasonably anticipated to be a carcinogen (Group 2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica. Concrete may contain crystalline silica in concentrations greater than 0.1%, principally contributed by the aggregates. 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, airborne dust generated by grinding, sawing, drilling, breaking, etc. may lead to potentially hazardous exposures to workers and appropriate respiratory protection precautions should be taken.

Iron Oxide is listed by IARC as exhibiting evidence of carcinogenicity in experimental animals.

**Signs and Symptoms of Exposure:** Freshly mixed concrete is irritating to the eyes and skin. It can dry the skin and can cause alkaline burns to the skin and eyes. Hypersensitive individuals may develop an allergic dermatitis.

Chronic exposure to respirable dust containing crystalline silica in excess of applicable OSHA PELs, MSHA PELs and ACGIHV TLVs has caused silicosis. Symptoms of silicosis may include (but are not limited to) shortness of breath, difficulty breathing with or without exertion, coughing, diminished work capacity, diminished chest expansion, reduction of lung volume, right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**Medical conditions Generally Aggravated by Exposure:** Individuals with chronic respiratory disorders should minimize inhalation of dust generated from cutting grinding, crushing, or drilling hardened concrete. Individuals with skin diseases should minimize skin contact with the dust and with wet unhardened concrete.

**Physicians Note:** Ingestion of large amounts of wet unhardened concrete is unlikely. However, if wet concrete is swallowed, to prevent re-exposing the esophagus and stomach, do not induce emesis or perform gastric lavage. Immediate dilution may prevent esophageal burns. For severe burns, consider esophogoscopy within the first 24 hours. Washing with a pH neutral soap and water may aid in removing hardened concrete from the skin.

## Emergency and First Aid Procedures

**Wet unhardened concrete or hardened concrete dust in eyes:** Gently lift the eyelids and flush immediately and continuously with flooding amounts of water for a minimum of fifteen minutes. Consult a physician immediately if irritation persists or later develops.

**Wet unhardened concrete on skin:** Quickly remove contaminated clothing. Wash affected areas thoroughly with a pH neutral soap and water. Consult a physician immediately if irritation persists.

**Inhalation of hardened concrete dust:** Remove exposed person to fresh air and support breathing as needed. Encourage victim to cough, spit out and blow nose to remove dust. Consult a physician immediately. See physician's note in Section 6.

## Section 7 – Precautions for Safe Handling and Use

**Steps to be taken in case material is released or spilled:** Personnel involved with the handling of wet unhardened concrete should take steps to avoid contact with the eyes and skin through the use of gloves and suitable clothing. Wet unhardened concrete should be recycled or allowed to harden and disposed.

**Waste disposal method:** Allow wet concrete to harden and dispose as common solid waste. Follow applicable Federal, State, and local regulations for disposal. The material is not listed as hazardous waste under designations by the EPA or DOT.

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## Section 7 – Precautions for Safe Handling and Use (continued)

**Precautions for handling and storage:** Silica-containing respirable dust particles may be generated by crushing, cutting, grinding or drilling hardened concrete or concrete products. Follow protective controls defined in Section 6 when handling these products.

## Section 8 – Control Measures

**Protective Gloves:** When handling wet unhardened concrete, wear chemical resistant gloves to prevent skin contact. Wash thoroughly after handling.

**Eye Protection:** 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 suitable protective clothing as needed, to prevent skin contact with unhardened concrete.

**Work/Hygiene Practices:** Contact with wet unhardened concrete, mortar, cement or cement mixtures can cause skin irritation, severe chemical burns or serious eye damage. Avoid contact with eyes and skin. Wear waterproof gloves, a fully buttoned long sleeve shirt, full-length trousers and tight fitting eye protection when working with these materials. If you have to stand in wet concrete, use boots that are tight at tops and high enough to keep concrete from flowing into them. If you are finishing concrete, wear kneepads to protect knees. Wash wet concrete, mortar, cement or cement mixtures from your skin with fresh, clean water immediately after contact. Indirect contact through clothing can be as serious as direct contact, so promptly rinse out wet concrete, mortar, cement or cement mixtures from clothing. Seek immediate medical attention if you have persistent or severe discomfort. In case of eye contact, flush with plenty of water for at least 15 minutes. Consult a physician immediately. **KEEP OUT OF REACH OF CHILDREN.** Avoid dust inhalation and direct contact with skin and eyes. Wash contaminated skin before eating, drinking, smoking, lavatory use and before applying cosmetics.