

Material Safety Data Sheet

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Lafarge Ready Mix Concrete (Concrete)

Product Identifiers: Ready Mix Concrete, Concrete Ready Mix, Portland Cement Concrete, Ready Mix Stucco, Ready Mix Grout, Ready Mix, Concrete, Colloidal Concrete, Permeable Concrete, Shotcrete, Gunite, Polymer-Portland Cement Concrete, Colored Concrete, Flowable Fill, Roller-Compacted Concrete, Fiber Reinforced Concrete, Weathermix, UltraCurb™, UltraDrive™, UltraFlo-Fil™, UltraHorizontal™, UltraFootings™, UltraPatio™, UltraStamp™, UltraTilt™, UltraVertical™, Agrifarge™ Plus, Agrifarge™ RP, Agrifarge™ 20, 25, 30, 32, ArteviaColor™

Manufacturer:
Lafarge North America Inc.
12950 Worldgate Drive, Suite 500
Herndon, VA 20170

Information Telephone Number:
703-480-3600 (9am to 5pm EST)

Emergency Telephone Number:
1-800-451-8346 (3E Hotline)

Product Use: Concrete is widely used as a structural component in construction applications.

Note: This MSDS covers many types of Concrete. Individual composition of hazardous constituents will vary between types of Concrete.

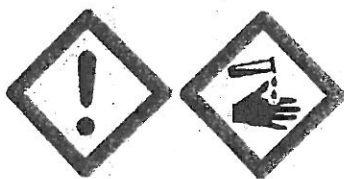

Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent (By Weight)	CAS Number	OSHA PEL -TWA (mg/m ³)	ACGIH TLV-TWA (mg/m ³)	LD ₅₀ (mouse)	LC ₅₀
Crystalline Silica	0-90	14808-60-7	[(10) / (%SiO ₂ +2)] (R); [(30) / (%SiO ₂ +2)] (T)	0.05 (R)	NA	NA
Calcium Carbonate*	25-65	1317-65-3	15 (T); 5 (R)	10 (T)	NA	NA
Portland Cement*	10-30	65997-15-1	15 (T); 5 (R)	10 (R)	NA	NA
Calcium Hydroxide	15-25	1305-62-0	15 (T); 5 (R)	5 (T)	7300 mg/kg (oral)	NA
Fly Ash	0-20	68131-74-8	NA	NA	NA	NA
Calcium Oxide	0-5	1305-78-8	5 (T)	2 (T)	3059 mg/kg (intraperitoneal)	NA
Magnesium Oxide	0-4	1309-48-4	15 (T)	10 (T)	NA	NA
Calcium Sulfate*	0-2	13397-24-5	15 (T); 5 (R)	10 (T)	NA	NA
Particulate Not Otherwise Regulated	-	NA	15 (T); 5 (R)	10 (T); 3 (R)	NA	NA

Note: Exposure limits for components noted with an * contain no asbestos and <1% crystalline silica

Concrete contains cement which is manufactured from materials mined from the earth and is processed using energy provided by fuels. Trace amounts of chemicals may be detected during chemical analysis such as: potassium and sodium sulfate compounds, chromium compounds, nickel compounds, and other trace compounds.

Section 3: HAZARD IDENTIFICATION

	<p>Corrosive - Causes severe burns. Toxic - Harmful by inhalation. (Contains crystalline silica)</p> <p>Use proper engineering controls, work practices, and personal protective equipment to prevent exposure to wet or dry product.</p> <p>Read MSDS for details.</p>	 <p>Respiratory Protection Eye Protection Waterproof Gloves Waterproof Boots</p>
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Section 3: HAZARD IDENTIFICATION (continued)

- Emergency Overview:** 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, eye, respiratory tract) damage due to chemical (caustic) burns, including third degree burns.
- Potential Health Effects:**
- Eye Contact (acute):** Concrete may cause immediate or delayed irritation or inflammation. Eye contact with wet concrete can cause moderate eye irritation, chemical burns and blindness. Eye exposures require immediate first aid and medical attention to prevent significant damage to the eye.
- Skin Contact (acute):** Concrete may cause dry skin, discomfort, irritation, severe burns, and dermatitis.
- Burns:** Exposure of sufficient duration to wet concrete can cause serious, potentially irreversible damage to skin, eye, respiratory and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.
- Dermatitis:** Unhardened concrete is capable of causing dermatitis by irritation and allergy. Skin affected by dermatitis may include symptoms such as, redness, itching, rash, scaling, and cracking.
- Irritant dermatitis is caused by the physical properties of concrete including alkalinity and abrasion.
- Sensitization:** Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in concrete. The reaction can range from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with wet concrete. Others may develop allergic dermatitis after years of repeated contact with wet concrete.
- Inhalation (acute):** Breathing dust may cause nose, throat lung or mucous membrane irritation, including choking, depending on the degree of exposure. Inhalation of high levels of dust can cause chemical burns to the nose, throat and lungs.
- Inhalation (chronic):** Risk of injury depends on duration and level of exposure.
- Silicosis:** This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease. See Note to Physicians in Section 4 for further information.
- Carcinogenicity:** Concrete is not listed as a carcinogen by IARC or NTP; however, concrete contains trace amounts of crystalline silica and hexavalent chromium which are classified by IARC and NTP as known human carcinogens.
- Autoimmune Disease:** Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys.
- Tuberculosis:** Silicosis increases the risk of tuberculosis.
- Renal Disease:** Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

Section 3: HAZARD IDENTIFICATION (continued)

Ingestion: Do not ingest concrete. Although ingestion of small quantities of concrete is not known to be harmful, large quantities can cause chemical burns in the mouth, throat, stomach, and digestive tract.

Medical Conditions Individuals with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary
Aggravated by Exposure: disease) or sensitivity to hexavalent chromium can be aggravated by exposure.

Section 4: FIRST AID MEASURES

Eye Contact: Rinse eyes thoroughly with water for at least 15 minutes, including under lids, to remove all particles. Seek medical attention for abrasions and burns.

Skin Contact: Wash with cool water and a pH neutral soap or a mild skin detergent. Seek medical attention for rash, burns, irritation, dermatitis, and prolonged unprotected exposures 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 center immediately.

Note to Physician: The three types of silicosis include:

- Simple chronic silicosis – which results from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring provoked by the respirable crystalline silica form in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD).
- Accelerated silicosis – occurs after exposure to larger amounts of respirable crystalline silica over a shorter period of time (5-15 years). Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis.
- Acute silicosis – results from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and may fill with fluid, causing severe shortness of breath and low blood oxygen levels.

Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis results from severe scarring and leads to the destruction of normal lung structures.

Section 5: FIREFIGHTING MEASURES

Flashpoint & Method:	Non-combustible	Firefighting Equipment:	Concrete poses no fire-related hazard. A SCBA is recommended to limit exposures to combustion products when fighting any fire.
General Hazard:	Avoid breathing dust. Wet concrete is caustic.	Combustion Products:	None.
Extinguishing Media:	Use extinguishing media appropriate for surrounding fire.		

Section 6: ACCIDENTAL RELEASE MEASURES

General: Place spilled material into a container. Avoid contact with skin. Wear appropriate protective equipment as described in Section 8. Scrape wet concrete and place in container. Allow material to dry or solidify before disposal. Do not wash concrete down sewage and drainage systems or into bodies of water (e.g. streams).

Waste Disposal Method: Dispose of concrete according to Federal, State, Provincial and Local regulations.

Section 7: HANDLING AND STORAGE

Usage: Cutting, crushing or grinding hardened cement, concrete or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.

Storage Temperature: Unlimited.

Storage Pressure: Unlimited.

Clothing: Promptly remove and launder clothing that is wet with concrete. Thoroughly wash skin after exposure to wet concrete.

Section 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

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

Personal Protective Equipment (PPE):

Respiratory Protection: Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator that is properly fitted and is in good condition when exposed to dust above exposure limits.

Eye Protection: Wear ANSI approved glasses or safety goggles when handling wet concrete to prevent contact with eyes. Wearing contact lenses, when using concrete, is not recommended.

Skin Protection: Wear gloves, boot covers and protective clothing impervious to water to prevent skin contact. Do not rely on barrier creams, in place of impervious gloves. Remove clothing and protective equipment that becomes saturated with wet cement and immediately wash exposed areas.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Semi-fluid, Flowable, granular paste.	Evaporation Rate:	NA.
Appearance:	Variety of color (usually gray)	pH (in water):	12 – 13
Odor:	None.	Boiling Point:	NA
Vapor Pressure:	NA.	Freezing Point:	NA.
Vapor Density:	NA.	Viscosity:	Varies.
Specific Gravity:	1.9 – 2.4	Solubility in Water:	Slightly (0.1 - 1.0%)

Section 10: STABILITY AND REACTIVITY

- Stability:** Hardened concrete is stable. Avoid contact with incompatible materials.
- Incompatibility:** Wet concrete is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

Hazardous Polymerization: None.

Hazardous Decomposition: None.

Section 11 and 12: TOXICOLOGICAL AND ECOLOGICAL INFORMATION

For questions regarding toxicological and ecological information refer to contact information in Section 1.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers in compliance with applicable Federal, State, Provincial and Local regulations.

Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations.

Section 15: 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:** This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard.
- EPRCA
SARA Section 313:** This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.
- RCRA:** If discarded in its purchased form, this product would not be a hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a 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 16: OTHER INFORMATION
Abbreviations:

>	Greater than	NA	Not Applicable
ACGIH	American Conference of Governmental Industrial Hygienists	NFPA	National Fire Protection Association
CAS No	Chemical Abstract Service number	NIOSH	National Institute for Occupational Safety and Health
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act	NTP	National Toxicology Program
CFR	Code for Federal Regulations	OSHA	Occupational Safety and Health Administration
CL	Ceiling Limit	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	pH	Negative log of hydrogen ion
EST	Eastern Standard Time	PPE	Personal Protective Equipment
HEPA	High-Efficiency Particulate Air	R	Respirable Particulate
HMIS	Hazardous Materials Identification System	RCRA	Resource Conservation and Recovery Act
IARC	International Agency for Research on Cancer	SARA	Superfund Amendments and Reauthorization Act
LC ₅₀	Lethal Concentration	T	Total Particulate
LD ₅₀	Lethal Dose	TDG	Transportation of Dangerous Goods
mg/m ³	Milligrams per cubic meter	TLV	Threshold Limit Value
MSHA	Mine Safety and Health Administration	TWA	Time Weighted Average (8 hour)
		WHMIS	Workplace Hazardous Materials Information System

This MSDS (Sections 1-16) was revised on April 6, 2005.

An electronic version of this MSDS is available at: www.lafarge-na.com under the Products section.

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