

MATERIAL SAFETY DATA SHEET

GRANITE™

GRANITE CONSTRUCTION INCORPORATED
P. O. BOX 50085, WATSONVILLE, CA 95077-5085
831-724-1011

PREPARED: 10-16-07
REPLACES: 10-01-04

SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME Not Applicable	CHEMICAL FORMULA Mixture	MOLECULAR WEIGHT Not Applicable
TRADE NAME(S) Ready Mix Concrete		
SYNONYMS Freshly Mixed Unhardened Concretes	DOT IDENTIFICATION NO. None	

SECTION II PRODUCT AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (APPROX.) (optional)	OSHA PEL	ACGIH TLV
Mineral Aggregates (crushed stone, sand and gravel) Silica, crystalline – typically Quartz (content typically greater than 1% and can be higher than 20%) Other possible forms of crystalline silica Cristobalite Tridymite	Mixture 14808-60-7	60-95 Varies	See Section X See Section X	See Section X See Section X
	14464-46-1 15468-32-3	Varies Varies	See Section X See Section X	See Section X See Section X
Hydraulic (Portland) Cement	65997-15-1	3-20	See Section X	See Section X
Fly Ash	68131-74-8	0-11	See Section X	See Section X

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR Light to dark gray liquid of varying viscosity. May smell like damp earth.	SOLUBILITY IN WATER Insoluble		
BOILING POINT	NA	SPECIFIC GRAVITY (H₂O = 1 @ 39.2 F)	1.7-3.0
VAPOR PRESSURE (mm Hg)	NA	MELTING POINT	NA
VAPOR DENSITY IN AIR (AIR = 1)	NA	EVAPORATION RATE (Butyl Acetate = 1)	NA

SECTION IV PHYSICAL HAZARDS (FIRE AND EXPLOSION HAZARD DATA)

FLASHPOINT (METHOD USED) Not flammable or combustible	FLAMMABLE LIMITS IN AIR (% Vol. in air) Not flammable or combustible	LEL NA	UEL NA
EXTINGUISHING AGENTS None required			

UNUSUAL FIRE AND EXPLOSION HAZARDS

Contact with powerful oxidizing agents may cause fire and/or explosion.

SECTION V REACTIVITY DATA

STABILITY	Unstable		CONDITIONS TO AVOID Avoid contact with incompatible materials.
	Stable	X	

INCOMPATIBILITY (MATERIALS TO AVOID)

Wet Portland cement is caustic (pH approximately 12) and could react with strong acids. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, oxygen difluoride and hydrogen peroxide yielding possible fire and/or explosions. Silica is also incompatible with acetylene and ammonia. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

HAZARDOUS DECOMPOSITION PRODUCTS

Silica-containing respirable dust particles may be generated if hardened product is subjected to mechanical forces such as in demolition work and surface modification (sanding, grooving, chiseling, etc.)

HAZARDOUS POLYMERIZATION	May Occur		CONDITIONS TO AVOID Not Applicable
	Will Not Occur	X	

SECTION VI TOXICITY AND FIRST AID

PRIMARY ROUTE(S) OF EXPOSURE	Inhalation? Yes	Skin? Yes	Ingestion? No
-------------------------------------	-----------------	-----------	---------------

HEALTH HAZARDS (ACUTE AND CHRONIC)

Wet cement is caustic (pH approximately 12) and hygroscopic (absorbs and retains water).

Eye Contact: Contact may result in chemical (caustic) burns and eye injury. Concrete dust may be irritating.

Skin Contact: Contact with wet cement may cause abrasion of the skin and contact dermatitis (cement dermatitis), the symptoms of which include (but may not be limited to) reddening, irritation, and rash. More severe effects, including chemical (caustic) burns and skin ulcers may occur. Concrete dust may be irritating. Hydraulic (Portland) cement may contain trace amount of hexavalent chromium. Hexavalent chromium has been associated in some individuals with causing allergic skin reactions which may be manifested as contact dermatitis and skin ulcerations. Individuals who develop allergies to skin sensitizers, such as hexavalent chromium, may experience a reaction upon repeated contact with those compounds. The symptoms of allergic reactions may include (but are not limited to) reddening of the skin, rash, and irritation. Irritated or broken skin is more likely to develop further complications such as ulcers and infection.

Skin Absorption: Not applicable.

Ingestion: Direct contact with exposed tissues may result in severe irritation and chemical (alkali) burns.

Inhalation: Dusts may irritate the nose, throat, and respiratory tract. Avoid breathing excessive dust.

Repeated and prolonged (chronic) exposure to respirable dust in excess of allowable exposure limits can result in pneumoconiosis, a lung disease.

Chronic exposure to wet cement has caused chronic dermatitis. Drying, thickening, and cracking of the skin and nails may also occur, which may be more likely to develop further complications such as ulcers and infection.

Repeated and prolonged (chronic) exposure to respirable crystalline silica-containing dust in excess of allowable exposure limits may cause silicosis, a progressive pneumoconiosis, and possibly lung cancer. Smoking may further increase the risk of lung disease. Dry product or hardened product subjected to mechanical forces (such as demolition work) may result in respirable dust exposure.

CARCINOGENICITY Portland cement is not listed as a carcinogen on the NTP, IARC, or OSHA list of carcinogens. Hexavalent chromium and certain chromium compounds are listed of the NTP and IARC lists of carcinogens. The total amounts of chromium and chromium compounds in Portland cement are typically less than 0.003% (hexavalent chromium typically less than 0.001%). Crystalline silica, a component of this product, is listed by IARC as a carcinogen. The IARC has determined that there is sufficient evidence of carcinogenicity in experimental animals exposed to crystalline silica and limited evidence of its carcinogenicity in humans. The NTP has listed respirable crystalline silica as a known human carcinogen. The American Conference of Governmental Industrial Hygienists (ACGIH) has listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2 designation).	NTP Hexavalent Chromium - Known Carcinogen Silica – Known Carcinogen	IARC Hexavalent Chromium – Carcinogen (Group 1) Silica - Carcinogen (Group 1)	OSHA NE
---	---	--	-------------------

CALIFORNIA PROPOSITION 65 WARNING "This product contains chemical(s) known to the State of California to cause cancer."	CA LISTED CARCINOGEN(S) Crystalline silica (quartz, cristobalite), hexavalent chromium
---	--

SIGNS AND SYMPTOMS OF EXPOSURE

The signs and symptoms of acute exposure to dust may include irritation of the eyes, skin and respiratory tract

The signs and symptoms of acute exposure to Portland cement include physical irritation of the eyes, with redness and tearing; coughing; and redness, roughness, and scaling of the skin. The signs and symptoms of repeated or prolonged exposure of the skin to Portland cement include coughing, expectoration, exertional dyspnea, and skin redness, blistering, burns, and in some individuals, raised itching areas characteristic of hives.

Symptoms of silicosis include (but may not be limited to): Shortness of breath, difficulty breathing with or without exertion, coughing, diminished work capacity, diminished chest expansion, reduction in lung volume, right heart enlargement or failure.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Contact with wet cement and/or dust may aggravate existing skin and/or eye conditions. Inhaling respirable dust may aggravate existing respiratory conditions.

EMERGENCY AND FIRST AID

Eyes: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelids(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Seek medical attention at once and continue to flush eye(s) until a physician takes charge.

Skin: Flush skin with clean water for at least 15 minutes. Remove and wash contaminated clothing. Contact a physician if irritation persists or later develops. Burns should be treated as caustic burns.

Ingestion: If conscious, give large quantity of water to dilute the stomach contents. Do not attempt to make the person vomit unless directed by medical personnel. Contact a physician immediately.

Dust inhalation: Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact physician if irritation persists or later develops.

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Personnel involved in cleanup processes should implement controls as identified in Section VIII as appropriate. Prevent spilled materials from entering streams, drainages, or sewers where it can harden and clog flow.

WASTE DISPOSAL METHOD

None of the components in this product are subject to the reporting requirements of Title III SARA, 1986, and 40 CFR 372. Material can be retained until it hardens. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

STORAGE AND HANDLING PRECAUTIONS

Respirable dust may be generated during processing, handling and storage. The controls identified in Section VIII should be applied as appropriate.

Portland cement should be stored in a cool, dry, well-ventilate area in tightly sealed containers that are labeled in accordance with OSHA and MSHA hazard communication standards. Containers of Portland cement should be protected from physical damage. Do not store near food and beverages or smoking material. Avoid incompatible materials.

SECTION VIII PERSONAL PROTECTION AND CONTROL MEASURES**RESPIRATORY PROTECTION**

Not required under normal use and working conditions. For air contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-MSHA approved, contaminant-specific, air-purifying respirator. If such concentrations are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive pressure self-contained breathing apparatus. Consult an industrial hygienist for evaluation of exposures. Follow all applicable MSHA or OSHA respirator use, fitting, and training standards and regulations.

VENTILATION

Use only in well ventilated areas. Natural ventilation generally adequate to maintain exposures below appropriate exposure limits under anticipated use conditions.

Local Exhaust As required

Special

Mechanical (General) As required

Other

PROTECTIVE GLOVES

Waterproof, caustic-resistant gloves for direct contact with product

EYE PROTECTION

Safety glasses with side shields should be worn as minimum protection. As needed, wear chemical safety goggles or face shield to prevent contact with product. Dust goggles should be worn when excessively (visible) dusty conditions are present or anticipated.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT

Waterproof, caustic-resistant rubber boots and rubberized clothing sufficient to protect the skin from contact with wet cement should be worn.

HYGIENE

Use work practices which minimize generation of airborne dust. Use normal good hygiene practices. Skin should be kept free of wet cement. Clothing saturated with wet cement should be removed promptly to prevent continued contact with skin. Wash hands with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use. After working with cement, workers should shower with soap and water and wear clean clothing after showering.

OTHER CONTROL MEASURES

A fresh water supply for emergency first aid and washing facilities should be readily available. Workers should station themselves on the windward side of dust emissions when possible. Respirable dust levels should be monitored as needed to evaluate exposures during handling and use of product, including activities which generate dust from hardened product. Exposures in excess of the PEL should be reduced to the lowest feasible level through engineering and administrative controls (such as source control, ventilation and/or work practice changes); respiratory protection should be used only where exposures continue to exceed applicable PEL(s).

SECTION IX TRANSPORTATION**DOT HAZARD CLASS**

None

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by the OSHA and MSHA Hazard Communication standards [29 CFR 1910.1200 (f) and 30 CFR Part 42], and applicable state and local regulations.

SECTION X EXPOSURE LIMITS

		MSHA PEL	OSHA PEL	NIOSH REL	ACGIH TLV
PARTICULATES (NOT OTHERWISE REGULATED)	TWA	10 mg/m ³ (total)	15 mg/m ³ (total) 5 mg/m ³ (respirable)	NE	10 mg/m ³ (inhalable) 3 mg/m ³ (respirable)
	STEL	NE	NE	NE	NE
	C	NE	NE	NE	NE
	IDLH	NE	NE	NE	NE
	OTHER EXPOSURES LIMITS: Cal/OSHA PEL – 10 mg/m ³ (total), 5 mg/m ³ (respirable)				
CRYSTALLINE SILICA (QUARTZ, CRISTOBALITE, TRIDYMITE)	TWA	30 mg/m ³ / (%SiO ₂ +2) (total particulate containing silica)	10 mg/m ³ / (%SiO ₂ +2) (respirable particulate containing silica)	0.05 mg/m ³ (respirable silica)	0.025 mg/m ³ (respirable quartz and cristobalite)
	STEL	NE	NE	NE	NE
	C	NE	NE	NE	NE
	IDLH	NE	NE	25 mg/m ³ (respirable cristobalite and/or tridymite) 50 mg/m ³ (respirable quartz)	NE
	OTHER EXPOSURE LIMITS: Cal/OSHA PEL – 0.1 mg/m ³ (respirable quartz), 0.05 mg/m ³ (respirable cristobalite and tridymite)				
PORTLAND CEMENT	TWA	10 mg/m ³	15 mg/m ³ (total) 5 mg/m ³ (respirable)	10 mg/m ³ (Total) 5 mg/m ³ (Respirable)	1 mg/m ³
	STEL		NE	NE	5 mg/m ³
	C		NE	NE	NE
	IDLH		NE	NE	NE
	OTHER EXPOSURE LIMITS / LEVELS:				

NOTES

PEL = permissible exposure limit
 REL = recommended exposure limit
 TLV = threshold limit value
 % SiO₂ = percent silicon dioxide (silica) in dust

TWA = 8-hour time-weighted average
 STEL = short-term exposure limit (15-minute average)
 C = ceiling (peak exposure)
 IDLH = immediately dangerous to life or health

ppm = parts per million in air
 mg/m³ = milligrams per cubic meter of air
 NE = not established
 NA = not applicable