Graniterock

MATERIAL SAFETY DATA SHEET

SECTION 1 – PRODUCT INFORMATION

Product Name(s): Unhardened portland cement concrete (Note: Also see MSDS on hardened concrete.)

Producer's Name: Granite Rock Company

Address: 350 Technology Dr., Watsonville, CA 95076
P.O. Box 50001, Watsonville, CA 95077-5001

Phone Number: (831) 768-2000

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Prepared by: Paul C. Lessard, Ph.D.

SECTION 2 – HAZARDOUS INGREDIENT(S)

Chemical Names	CAS Number	Quantity (Percent)	Formula	Exposure Limits in Air		
				ACGIH TLV TWA(2)	OSHA PEL(3)	NIOSH REL(4)
Crystalline silica (aggregate)	14808-60-7	15-25(1)	SiO_2	0.025 mg/m^3	$\frac{10 \text{ mg/m}^3}{\%SiO_2+2}$	0.05 mg/m^3
Magnesium oxide (cement)	1309-48-4	< 5	MgO	10 mg/m^3	15 mg/m^3	--
Calcium oxide (cement)	1305-78-8	<10	CaO	2 mg/m^3	5 mg/m^3	--
Calcium hydroxide (cement)	1305-62-0	<20	$Ca(OH)_2$	5 mg/m^3	5 mg/m^3	--
Portland cement(5)	65997-15-1	10-30	C_3S, C_2S, etc	5 mg/m^3	10 mg/m^3	--
Calcium carbonate(5)	1317-65-3	20-40	$CaCO_3$	5 mg/m^3	10 mg/m^3	--

(1) Assumes concrete mix is composed of approximately 75% granite aggregate which contain approximately 13.5% silica as measured by DCM Science Labs, Wheat Ridge, Colorado.

(2) ACGIH TLV: American Conference of Industrial Hygienist Threshold Limit Value (TLV) time-weighted average (TWA).

(3) OSHA PEL: Occupational Safety and Health Administration Permissible Exposure Limit for an 8-hour time weighted average.

(4) NIOSH REL: National Institute for Occupational Safety & Health, Recommended Exposure Limit

(5) Assumes no asbestos present and 1% crystalline silica.

SECTION 3 – HAZARD IDENTIFICATION

Overview:
This product contains a mixture of portland cement, water, and aggregates (sand and gravel). The naturally occurring aggregate, typically granite and/or limestone, contains varying amounts of crystalline silica as described herein. When working with this alkaline product, wear protective rubber gloves.

This product may also contain small quantities of admixtures from secondary producers including: Daravair M/R, WRDA with Hycol, Eclipse, Recover, Mira 85, Polarset, ADVA, DCI Corrosion Inhibitor (from W.R. Grace), fly ash (from Headwaters), Xypex, as well as colors and fibers. For information on these products, consult with Graniterock or the manufacturer.

When in the hardened state, portland cement concrete may yield dust containing crystalline silica when drilled, cut, sawed, or abraded in any way. Please see the "Hardened Concrete" Graniterock MSDS for additional information.

Potential Health Effects

Eye contact: If wet concrete contacts eyes, rinse immediately with water. If irritation persists, contact a physician.

Skin contact: Wet concrete is very alkaline and will burn and/or dry skin severely. Wear rubber gloves when handling.

SECTION 4 – FIRST-AID MEASURES

Eye contact: Gently flush eyes with clean water. Seek medical aid if irritation persists or develops.

Skin contact: Wash with soap and water. Seek medical aid if irritation persists or develops.

SECTION 5 – FIRE AND EXPLOSION

Will not burn or explode under any conditions. Non-flammable and non-explosive.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Spill Response Procedures: Keep concrete and concrete rinse water away from streams, lakes, and storm drains by placing earthen beams across runoff pathway. Wait until concrete is sufficiently hardened to handle.

Preparing Waste for Disposal: No special procedures required. Dispose of according to local, state and federal regulations. Not classified as a hazardous waste by the Resource Conservation and Recovery Act.

SECTION 7 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: Not required when unhardened. However, protection is required when hardened. See Graniterock's Hardened Concrete MSDS for additional information.

Gloves: Water proof gloves should be used.

Other Clothing: No special requirements.

Work Practices: Avoid contact with skin.

Hygiene Practices: Wash dust-exposed skin with soap and water.

SECTION 8 – EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection: NIOSH/MSHA approved dust respirators with a N95 rating or better should be used where dust levels exceed or are likely to exceed exposure levels defined in Section 2. Respirator use must comply with applicable MSHA or OSHA standards which include a provision for fit testing, cleaning, training in correct usage and a fitness test for respirator use. See NIOSH Publication 2008-140 and www.cdc.gov/niosh/npptl/topics/respirators/ for more information.

Eye Protection: Safety glasses with side shields or goggles should be worn as minimum protection.

Gloves: Water proof gloves should be used.

Other Clothing: Wear long pants and shirt to protect skin from potential burns.

Work Practices: Avoid generating dust; use water to wet surfaces.

Hygiene Practices: Wash dust-exposed skin with soap and water.

SECTION 9 – PHYSICAL PROPERTIES

Vapor density (air=1):	None	**Melting point:**	N/A
Specific gravity:	2.2 – 2.5	**Boiling point:**	N/A
Solubility in water:	Insoluble	**Evaporation rate:**	None
Vapor pressure:	None		
Appearance and odor:	Grey mixture containing aggregates and cement paste.		

SECTION 10 – STABILITY AND REACTIVITY

Stability: Crystalline silica (quartz) is stable, will not polymerize, and is known to be compatible with all other substances except strong oxidizing agents such as fluorine, chlorine trifluoride, or oxygen difluoride.

Hazardous Decomposition Products: Silica-containing respirable dust particles may be generated by handling and transport.

SECTION 11 – TOXICOLOGICAL INFORMATION ON CRYSTALLINE SILICA

Crystalline silica is a naturally occurring substance found in soil and rock formations. Crystalline silica is present in trace amounts in the atmosphere air as particulate. Crystalline silica is one of several crystalline polymorphs (including trydimite,

cristobalite) of silicon dioxide. When heated to 870°C, crystalline silica transforms to trydimite, and when heated to 1,470°C it can transform to cristobalite. The OSHA PEL for trydimite and cristobalite are one-half the PEL for crystalline silica. Chronic or ordinary silicosis is the most common form of silicosis which can occur after many years of exposure to relatively low levels of airborne respirable dust.

Crystalline silica is listed by the National Toxicology Program in a category which may reasonably be anticipated to be a carcinogen, and by the International Agency for Research on Cancer (IARC) as a Group 1 carcinogenic. After years of study, the non-governing IARC concluded in 1997 that there was "sufficient evidence in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupation sources." The IARC noted that carcinogenicity was not detected in all industries, and that toxicity may depend on "external factors affecting its biological activity or distribution of its polymorphs."

Crystalline silica is listed by the Governor of the State of California, under Proposition 65, as requiring the following warning: "Detectable amounts of chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm may be found in this product."

SECTION 12 – ECOLOGICAL INFORMATION

There is no data that shows crystalline silica (quartz) is toxic to birds, fish, invertebrates, microorganisms or plants.

GRANITE ROCK COMPANY DISCLAIMER

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