

## SECTION 1 – PRODUCT INFORMATION

**Product Name(s):** Hardened portland cement concrete (Note: Also see MSDS on unhardened 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

**Date:** October, 1999; Revised January, 2009

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## SECTION 2 – HAZARDOUS INGREDIENT(S)

Chemical Names	CAS Number	Quantity (Percent)	Formula	Exposure Limits in Air		
				ACGIH TLV TWA <sup>(2)</sup>	OSHA PEL <sup>(3)</sup>	NIOSH REL <sup>(4)</sup>
Crystalline silica (aggregate)	14808-60-7	15-25 <sup>(1)</sup>	SiO <sub>2</sub>	0.025 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> %SiO <sub>2</sub> +2	0.05 mg/m <sup>3</sup>
Magnesium oxide (cement)	1309-48-4	< 5	MgO	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>	--
Calcium oxide (cement)	1305-78-8	<10	CaO	2 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	--
Calcium hydroxide (cement)	1305-62-0	<20	Ca(OH) <sub>2</sub>	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	--
Portland cement <sup>(5)</sup>	65997-15-1	Oct 30, 2010	C <sub>3</sub> S, C <sub>2</sub> S, etc	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	--
Calcium carbonate <sup>(5)</sup>	1317-65-3	20-40	CaCO <sub>3</sub>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	--

(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 cutting, drilling or breaking hardened concrete, do not breathe the dust.

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.

### Potential Health Effects

**Inhalation:** Inhalation of dust containing crystalline silica can potentially lead to:

**Silicosis:** Acute silicosis may occur under conditions of extremely high respirable crystalline silica (quartz) exposure. Silicosis is a fibrosis (scarring) of the lungs, and may be progressive.

**Lung Cancer:** Crystalline silica (quartz) inhaled from occupational sources is classified as carcinogenic to humans.

**Autoimmune disorder:** There is evidence that exposure to respirable crystalline silica or silicosis is associated with the increased incidence of scleroderma, an autoimmune disorder.

**Tuberculosis:** Several studies indicate that silicosis increases the risk of tuberculosis.

**Bronchitis/Emphysema:** Respiratory ailments including bronchitis and emphysema may be aggravated by exposure to respirable crystalline silica.

**Eye contact:** Crystalline silica (quartz) may cause abrasion, irritation, redness and/or watering of the eyes.

**Skin contact:** Not applicable.

**Chronic:** The adverse health effects mentioned above (silicosis, cancer, scleroderma, and tuberculosis) are considered chronic effects.

**Reproductive:** Reproductive toxicity has not been demonstrated.

## 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.

**Inhalation:** Remove from exposure. Seek medical aid if respiratory difficulty persists or develops.

**Ingestion:** Seek medical aid if discomfort is experienced.

## 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. May be readily recycled into baserock by crushing and screening.

## **SECTION 7 – HANDLING AND STORAGE**

**Ventilation and Engineering Controls:** Do not breathe dust. Dust suppression controls such as water sprays or dust collection controls such as vents or baghouses should be used where dust generation results from handling. Practice good housekeeping-do not allow dust to collect on walls, floors, ceilings.

## **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/](http://www.cdc.gov/niosh/npptl/topics/respirators/) for more information.

**Eye Protection:** When cutting, safety glasses with side shields should be worn as minimum protection. Should excessively dusty conditions be present, use goggles.

**Gloves:** Water proof gloves should be used.

**Other Clothing:** No special requirements.

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

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

**Protective Measures During Maintenance of Contaminated Equipment:** Use respiratory protection, eye protection and gloves if dust is likely to be generated.

## SECTION 9 – PHYSICAL PROPERTIES

<b>Vapor density (air=1):</b>	None	<b>Melting point:</b>	N/A
<b>Specific gravity:</b>	2.2 – 2.5	<b>Boiling point:</b>	N/A
<b>Solubility in water:</b>	Insoluble	<b>Evaporation rate:</b>	None
<b>Vapor pressure:</b>	None		
<b>Appearance and odor:</b>	Very hard solid containing gray paste and aggregates		

How to detect this substance: X-ray diffraction-NIOSH Methods 7500 & 7501

## 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 I 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.

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