MATERIAL SAFETY DATA SHEET GRANITE

P. O. BOX 50085
WATSONVILLE, CA 95077-5085
831/724-1011

PREPARED DATE: 09-19-02
REPLACES:10-01-94

SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Not Applicable	Mixture	Not Applicable

TRADE NAME(S)
Recycled Base Rock

SYNONYMS
Crushed Concrete and Asphalt

DOT IDENTIFICATION NO.
None

SECTION II PRODUCT AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (APPROX.) *(optional)*	OSHA PEL	ACGIH TLV - TWA
Aggregate (crushed stone, sand, gravel, slag, expanded shale)	Mixture		NA	NA
Silica, crystalline – typically Quartz	14808-60-7		See Section X	0.05 mg/m^3
(content typically greater than 1% and can be higher than 20%)	65997-15-1			
Other possible forms of crystalline silica			See Section X	
Cristobalite	14464-46-1		See Section X	0.05 mg/m^3
Tridymite	15468-32-3			0.05 mg/m^3
Portland Cement	8052-42-4		15 mg/m^3 (Total)	10 mg/m^3
			5 mg/m^3 (resp.)	
Petroleum Asphalt			NE	0.5 mg/m^3

SECTION III PHYSICAL DATA

APPEARANCE AND ODOR
Angular particles, light/salt and pepper colored, ranging in size from pebbles to boulders. No odor.

SOLUBILITY IN WATER
Insoluble

BOILING POINT	NA	**SPECIFIC GRAVITY** (H_2O = 1 @ 39.2 F)	2.6-2.81
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)	FLAMMABLE LIMITS IN AIR (% Vol. in air)	LEL	UEL
Not flammable	Not flammable	NA	NA

EXTINGUISHING AGENTS
None required

UNUSUAL FIRE AND EXPLOSION HAZARDS
Contact with powerful oxidizing agents may cause fire and/or explosions.

SECTION V REACTIVITY DATA

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

INCOMPATIBILITY (MATERIALS TO AVOID)
Contact with powerful oxidizing agents such as fluorine, chlorine trifluoride, manganese trifluoride, oxygen difluoride, and hydrogen peroxide (etc.; acetylene, ammonia) may cause fire and explosion. Silica dissolves in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride. Concrete could react with strong acids.

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

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

SECTION VI TOXICITY AND FIRST AID

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

HEALTH HAZARDS *(ACUTE AND CHRONIC)*
Eye Contact: Dircet contact with dust may cause irritation by mechanical abrasion
Skin Contact: Dirct contact may cause irritation by mechanical abrasion
Skin Absortion: Not extecte to be a significant exposure route.
Ingestion: Ingestion is unlikely, but large amounts ingested may cause gastrointestine irritation and blockage.
Inhalation: Inhalation of dusts may irritate the nose, throat, and respiratory tract.

Crystalline silica is a naturally occurring substance found in rock formation and soil. The most common form of crystalline silica is quartz. Chronic exposure to respirable crystalline silica dust in excess of the appropriate exposure levels has been known to cause silicosis.

CARCINOGENICITY	NTP	IARC	OSHA
Crystalline silica is listed by IARC. IARC has determined that there is evidence for carcinogenicity to animals exposed to crystalline silica and limited evidence for carcinogenicity to humans. Limited evidence means that a causal relationship is possible; however, other explanations such as chance, bias or confounding factors cannot adequately be excluded. NTP has listed crystalline silica as reasonably anticipated to be a human carcinogen (RAHC).	Silica – RAHC	Silica - Carcinogen (Group 1)	NE

CALIFORNIA PROPOSITION 65
"WARNING: This product contains a chemical(s) known to the State of California to cause cancer."
STATE LISTED COMPONENT(S)
Crystalline silica

SIGNS AND SYMPTOMS OF EXPOSURE
Coughing, sneezing, wheezing, shortness of breath and irritation of eyes may occur following exposures in excess of appropriate exposure limits.

Symptoms of silicosis (but not 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
Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions.

EMERGENCY AND FIRST AID
Eyes: Immediately flush eye(s) with planty of clean water for at least 15 minutes, while hoding the eyelid(s) open. O ccasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persisits or later develps.

Skin: Wash with soap and water. Contact a physician if irritation persists or later develops.

Ingestion: If person is conscious, give large quantity of water and induce vomiting; however, never attempt to make an unconscious person drink or vomit. Get immediate medical attention.

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

For additional information contact: Director of Health and Safety
Granite Construction Incorporated
P. O. Box 50085
Watsonville, CA 95077-5085
408-724-1011

SECTION VII PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
Spilled material may generate dust and overexpose janitorial personnel. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Avoid dry sweeping. Prevent spilled materials from entering streams, drainages, or sewers.

WASTE DISPOSAL METHOD
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.

Do not store near food and beverages or smoking material. Avoid incompatible materials.

OTHER PRECAUTIONS

SECTION VIII PERSONAL PROTECTION AND CONTROL MEASURES

RESPIRATORY PROTECTION
If dust concentrations exceed the OSHA/MSHA PEL, wear NIOSH/MSHA-approved respiratory protection appropriate for the circumstances. Consult an industrial hygienist for evaluation of exposures. Follow applicable MSHA or OSHA respirator use, fitting, and training standards.

VENTILATION Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits.	**Local Exhaust** As required	**Special**
	Mechanical *(General)* As required	**Other**

PROTECTIVE GLOVES Not Required	**EYE PROTECTION** Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or anticipated.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT
Not Required

HYGIENE
Use work practices which minimize generation of airborne dust. Use normal good hygiene practices. Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

OTHER CONTROL MEASURES
Respirable dust levels should be monitored regularly. Dust levels in excess of the PEL should be reduced by engineering controls such as wet suppression, ventilation, and process enclosure or enclosed employee work stations.

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 (Permissible Exposure Level)	OSHA PEL (Permissible Exposure Level)	NIOSH REL (Recommended Exposure Limit)	ACGIH TLV (Threshold Limit Value)
PARTICULATES (DUST)	**TWA** (Time-weighted Average)		15 mg/m^3 (Total) 5 mg/m^3 (Respirable)	NE	10 mg/m^3 (Inhalable) 3 mg/m^3 (Respirable)
	STEL (Short-term Exposure Limit)		NA	NA	NA
	C (Ceiling)		NA	NA	NA
	IDLH (Immediate Dangerous to Life and Health)		NA	NA	NA
	OTHER EXPOSURE LIMITS/LEVELS: Cal/OSHA PEL – 10 mg/m^3 (Total), 5 mg/m^3 (Respirable)				
		MSHA PEL (Permissible Exposure Level)	**OSHA PEL** (Permissible Exposure Level)	**NIOSH REL** (Recommended Exposure Limit)	**ACGIH TLV** (Threshold Limit Value)
QUARTZ (CRYSTALLINE SILICA)	**TWA** (Time-weighted Average)		30 mg/m^3 / (%SiO_2 +2) total 10 mg/m^3 / (%SiO_2 +2) respirable	0.05 mg/m^3	0.05 mg/m^3
	STEL (Short-term Exposure Limit)		NA	NA	NA
	C (Ceiling)		NA	NA	NA
	IDLH (Immediate Dangerous to Life and Health)		NA	50 mg/m^3	NA
	OTHER EXPOSURE LIMITS/LEVELS: Cal/OSHA PEL - 0.1 mg/m^3				

PORTLAND CEMENT		**MSHA PEL** (Permissible Exposure Level)	**OSHA PEL** (Permissible Exposure Level)	**NIOSH REL** (Recommended Exposure Limit)	**ACGIH TLV** (Threshold Limit Value)
	TWA (Time-weighted Average)		15 mg/m^3 (Total) 5 mg/m^3 (Respirable)	10 mg/m^3 (Total) 5 mg/m^3 (Respirable)	10 mg/m^3
	STEL (Short-term Exposure Limit)		NA	NA	NA
	C (Ceiling)		NA	NA	NA
	IDLH (Immediate Dangerous to Life and Health)		NA	NA	NA
	OTHER EXPOSURE LIMITS/LEVELS:				
CRISTOBALITE AND TRIDYMITE (CRYSTALLINE SILICA)		**MSHA PEL** (Permissible Exposure Level)	**OSHA PEL** (Permissible Exposure Level)	**NIOSH REL** (Recommended Exposure Limit)	**ACGIH TLV** (Threshold Limit Value)
	TWA (Time-weighted Average)		½[30 mg/m^3 / (%SiO_2 +2)] total ½{10 mg/m^3 / (%SiO_2 +2)] respirable	0.05 mg/m^3	0.05 mg/m^3
	STEL (Short-term Exposure Limit)		NA	NA	NA
	C (Ceiling)		NA	NA	NA
	IDLH (Immediate Dangerous to Life and Health)		NA	50 mg/m^3	NA
	OTHER EXPOSURE LIMITS/LEVELS: Cal/OSHA PEL - 0.05 mg/m^3				