MATERIAL SAFETY DATA SHEET

GRANITE

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SECTION I MATERIAL IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Not Applicable	Mixture	Not Applicable

TRADE NAME(S)
Construction Sand

SYNONYMS
Crushed Stone, Fine

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 (sand)	**Mixture**	**100**	**See Section X**	**See Section X**
Silica, crystalline – typically Quartz (content typically greater than 1% and can be higher than 20%)	14808-60-7	Varies	See Section X	See Section X
Other possible forms of crystalline silica				
Cristobalite	14464-46-1	Varies	See Section X	See Section X
Tridymite	15468-32-3	Varies	See Section X	See Section X

SECTION III PHYSICAL DATA

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

SOLUBILITY IN WATER
Negligible

BOILING POINT	NA	**SPECIFIC GRAVITY** (H_2O = 1 @ 39.2 F)	2.4 – 2.8
VAPOR PRESSURE (mm Hg)	NA	**MELTING POINT**	NE
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 or combustible	Not flammable or combustible	NA	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)

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)*

Eye Contact: Contact with dust may be irritating.

Skin Contact: Contact with dust may be irritating.

Skin Absorption: Not applicable.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation and/or blockage.

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.

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 in demolition work) may result in exposure to respirable dust.

CARCINOGENICITY 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 Silica – Known Carcinogen	IARC Silica - Carcinogen (Group 1)	OSHA NE

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

SIGNS AND SYMPTOMS OF EXPOSURE

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

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 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 hands with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

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/m3 (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)				
		MSHA PEL	OSHA PEL	NIOSH REL	ACGIH TLV
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)				

NOTES

PEL = permissible exposure limit
REL = recommended exposure limit
TLV = threshold limit value
% SiO_2 = 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/m^3 = milligrams per cubic meter of air
NE = not established
NA = not applicable