SECTION 1 - IDENTITY

0026

A. Manufacturer's Name: American Stone-Mix, Inc.
B. Address: 8320 Bellona Avenue
Towson, Maryland 21204 -2012
C. Emergency Telephone Number: 301-296-6770
D. Names and Synonyms:

1-2 1/2 Mix	Concrete Mix
Shotcrete	Sand Mix
1-2-3 Mix	Metro Mix
Rip Rap	Footer Mix
1-2 Mix	Top 'N Bond
Tru-Bond	Mortar Mix
Concrete Resurfacer	White Grout
	White Mortar

F. Freight Classification (truck load): Item 90220 100J Class 50 + 35

G. U.F.C. (Rail) Sand Unground (N.O.I): Item 47460 Class 13 (Bulk). Class 17 1/2 (Bagged)
H. Standard Commodity Code (Unground Silica Sand): 14-413-10
I. D.O.T. Classification: Non-Flammable Solid (Not listed in 49 CFR 172.101)
J. H.M.I.S. Classification: 4-0-0-E
K. N.F.P.A.
L. U.N./NA: Not Listed
M. Chemical Family: Natural Rock forming Mineral
Silica: Natural Mineral Quartz
N. I.M.O. Classification: Not Listed
O. Standard Industrial Code (S.I.C.): 1446 Industrial Sand (1442 Sand and Gravel)
P. C.A.S. Number:
Q. Date Prepared: 03/04/91
R. Name of Preparer: Ed P. Weill

SECTION II - HAZARDOUS INGREDIENTS

Portland Cement 65997-15-1 10-33%
Total Dust
OSHA Final Limit: TWA = 10 mg/m3
Respirable
OSHA Final Limit: TWA = 5 mg/m3

Silica Dioxide - 14808-60-7
SiO2 Hazard Data: 67-90%

Current OSHA PEL 8-HR. TWA (Respirable Dust): 0.10 mg/m3

	MPPCF *	mg/m3
Crystalline Quartz (Respirable)	$\frac{250}{\% SiO2 + 5}$	$\frac{10\ mg/m3}{\% SiO2 + 2}$
Quartz (Total Dust)		$\frac{30\ mg/m3}{\% SiO2 + 2}$

*Millions of particles per cubic foot of air.

The percent of quartz in the formula is the amount determined from an airborne sample.

Both concentration and percent quartz for the application of this limit are to be determined from fractions passing a size selector (10 microns or smaller).

OSHA STANDARD - See 29 CFR, Part 1910.100 (Z-3 Table) for Mineral Dusts, Specifically "Silica": Crystalline Quartz (Respirable)

Proposed ACGIH 8-HR. TWA - 50 micrograms respirable free Silica per cubic meter of air (UG/m3)

P.E.L. = Permissible Exposure Limit
T.W.A. = Time Weighted Average

Prolonged overexposure to Crystalline Free Silica Dust above the threshold Limit value specified above may cause scarring of the lungs with cough and shortness of breath. A delayed lung injury, silicosis, may result from breathing free silica. Silicosis is a form of disabling, progressive and sometimes fatal pulmonary fibrosis characterized by the presence of typical modulation in the lungs. (Reference: H.E.W. publication #NIOSH 75-120) Crystalline Free Silica has been classified as having "limited evidence" of carcinogenicity in humans by the International Agency for Research on Cancer. (Reference: IARC Monographs Volume 42)

RESPIRATORY PROTECTION FOR CRYSTALLINE SILICA
(From September, 1978 Occupation Health Guideline for Crystalline Silica, U.S. Department of Labor, U. S. Department of Health and Human Services, et. al.)

Condition	***Minimum Respiratory Protection Required Above X**mg/m3**
Particulate Concentration 5X**mg/m3 or less	Any dust respiratory.
10X**mg/m3 or less	Any dust respiratory, except single-use or quarter-mask respirator. Any fume respirator or high efficiency particulate filter respiratory. Any supplied-air respirator. Any self-contained breathing apparatus.
50X**mg/m3 or less	A high efficiency particulate filter respirator with a full facepiece. Any supplied-air respiratory with a full facepiece, helmet or hood. Any self contained breathing apparatus with a full facepiece.
500X**mg/m3 or less	A powered air-purifying respiratory with a high efficiency particulate filter. A Type C supplied-air respirator operated in pressure or continuous flow mode.
Greater than 500X** mg/m3 or for entry escape from unknown concentrations.	Self-contained breathing apparatus with a facepiece operated in pressure demand and other positive pressure mode. A combination respirator which includes respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.

*Only NIOSH-approved or OSHA-approved equipment should be used.
**X indicates the permissible exposure as defined above.

SAFETY GLASSES AND GLOVES ARE OPTIONAL DEPENDING ON PRODUCT USE.

SECTION III
PHYSICAL/CHEMICAL CHARACTERISTICS

A. Boiling Point: 4046 degrees F, 2230 degrees C.
B. Vapor pressure (mm Hg): Not applicable.
C. Vapor Density (air = 1): Not applicable.
D. Solubility in Water: None.
E. Appearance and Odor: Grey - Odorless.
F. Specific Gravity (H20 - 1): 2.65.
G. Melting Point: 3110 degrees F, 1710 degrees C.
H. Evaporative Rate (Butyl Acetate = 1): None.
I. pH: 11.0 to 12.5.
J. Percent Solids by Weight: 100%.

SECTION IV
FIRE AND EXPLOSION HAZARD DATA

A. Flash Point: No flash point, open or closed cup.
B. Flammable Limits: Not flammable.
C. Extinguishing Media: Use extinguishing media appropriate to the surrounding fire.
D. Special Fire Fighting Procedure: No fire or explosive danger. Material is not combustible. Fire fighters should use self-contained breathing apparatus and eye protection in heavy concentrations of dust.
E. Unusual Fire and Explosion Hazards: None.

SECTION V
REACTIVITY DATA

A. Stability: Stable (Inert).
B. Incompatibility (Material to Avoid): Reacts with hydrofluoric acid to generate volatile, corrosive gas, SiF4 (silicon tetrafluoride).
May be attacked by strong alkalis. Will combine chemically with many metallic oxides upon heating at high temperatures. Will react with water to form solid mass.
C. Hazardous Decomposition or Byproducts: None.
D. Hazardous Polymerization: Will not occur.
E. SiO2 (quartz): When exposed to high temperatures, many change crystalline structure to form tridymite (above 870 degrees C) or Crystobalite (above 1470 degrees C) which have greater health hazards than quartz.

3. Dangerous Properties of Industrial Materials: Fourth Edition, S&X Page 1093.

DATA:

1. Toxic Hazard Rating: Acute.
   Local Inhalation: 2
   Acute Systemic: 0
   Chronic Local: Inhalation 1
   Chronic systemic: Inhalation 1

2. Toxicology: "From the point of view of the number of men exposed and cases of disability produced, silica is the chief cause of pulmonary dust disease. The prolonged inhalation of dust containing free silica may result in the development of a disabling pulmonary fibrosis known as silicosis.

4. Industrial Hygiene and Toxicology, F.A. Patty, Vol. 1, Page 121 and Vol. 2B, Page 3016.

DATA:

1. "Silicosis adult disease (pneumoconiosis) of the lungs resulting from over-exposure to free SiO2 dust, usually begins insidiously with symptoms of coughing, dyspepsia, wheezing and repeated non-specific chest diseases.

5. International Agency For Research on Cancer (IARC) Monographs on The Evaluation of the Carcinogenic Risk of Chemicals To Humans - Silica and Some Silicates Volume 42

DATA:

1. There is "sufficient evidence" for the carcinogenicity of crystalline silica to experimental animals.
2. There is "limited evidence" of carcinogenicity of crystalline silica to humans.
3. "Limited evidence" of carcinogenicity indicates that a causal interpretation is credible, but that alternative explanations, such as chance, bias or confounding, could not be adequately excluded.

6. OSHA Hazard Communication Rule 20 CFE Sections 1910.1200, 1915.99, 1917.28, 1918.90, 1926.59, 1928.21

DATA:

1. Right to Know Laws and Regulations.

7. ASTM Standard E 1132-86.

DATA:

1. Standard Practice for Health Requirements relating to occupational exposure to quartz dust.

NOTE: The above mentioned data is an incomplete abstract of the complete information disclosed in the source documents.

SECTION VI
HEALTH HAZARD DATA

Routes of Entry:
SKIN: Wear appropriate work clothing to minimize skin contact and skin abrasion and wash skin at each shift change. May Cause irritation due to High pH.

INGESTION: Before eating, hands and face should be washed. All food and lunches should be kept and eaten in separate lunch rooms. Do not eat, drink or smoke in work areas where exposure to silica dust may be excessive. High pH may cause irritation. Do not induce Vomiting due to asphyxiation risk.

INHALATION: Health hazards can occur from excessive inhalation of silica dust, otherwise nontoxic. Crystalline silica in the lung can produce a pneumoconiosis, commonly called silicosis, which is a chronic slowly developing disease. High pH can cause irritation.

CARCINOGENICITY: Crystalline silica is listed in the IARC Monographs on the Evaluation of The Carcinogenic Risk of Chemicals to Humans as having "limited evidence" for carcinogenicity to humans. (IARC Monographs Volume 42).

SUBSTANCE: SAND, SILICA (14808-60-7)

SOURCE:

1. **NIOSH-Registry of Toxic Effects of Chemical Substances 1982-Vol 3.**

   DATA:

   1. Inhalation: TClo: 16 mppcf/8 hr/17.9 yrs.
      LClo: 300 mgs/cum/10 yrs.
   2. Intravenous Rat: LDlo: 90 mg/kg.
   3. Aquatic Toxicity Rating: TLm 96: over 1000 ppm.
   4. Tumorigenic Data: Listing of data for rats, hamsters.

2. American Conference Governmental Industrial Hygienists, 1985-86, Page 39, "Notice of Intended Changes".

   DATA:

   TLV-TWA: 0.10 mg/cu meter-respirable dust.
   TLV-TWA 10 mg/cu meter-total dust.

SECTION VIII
CONTROL MEASURES

RESPIRATORY PROTECTION: ANSI Z88.2 Specifications or OSHA Standard #1910.34.

VENTILATION: Local exhaust - as appropriate. Use mechanical (general) exhaust as appropriate. Engineering controls (e.g. mechanical exhaust) should be in place in order to ensure that the employee exposure to respirable silica and respirable dust does not exceed the Permissible Exposure Limit.

PROTECTIVE GLOVES: Not required.

EYE PROTECTION: Recommended.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: NIOSH/OSHA approved particulate filter respirator. Air supplied hoods for blasters.

Eye protection - industrial safety glasses with side shields or goggles.

Other protective equipment - Hearing protectors whenever abrasive blasting operation generates excessive noise levels. Sandblasters require special protective equipment and safety precautions.

WORK/HYGIENIC PRACTICES: Use good housekeeping techniques.

SPECIAL PRECAUTIONS: Use dustless systems for handling, storage, and clean up so that airborne dust does not exceed PEL. Use adequate ventilation and dust collection. Practice good housekeeping. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Maintain, clean and test respirators in accordance with OSHA regulations. Maintain and test ventilation and dust collection equipment. Wash clothing which has become dusty; do not beat the dust from the clothing. We recommend that smoking be prohibited in all areas where respirators must be used. Warn your employees (and your customers - users in case of resale) by posting and other means of the hazard and OSHA precautions to be used. Provide training for your employees about the OSHA precautions.

SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms are dyspena - caused by many lung scars that develop from the silica dust - pain in the chest, decreased vital capacity and cough.

Medical conditions generally aggravated by exposure: Chronic lung scarring leads to a progressive massive fibrosis that is often accompanied by increased susceptibility to the risk of impaired health due to a combination of smoking and silica dust exposure.

EMERGENCY AND FIRST AID PROCEDURES

General - If a known acute exposure or incident occurs, immediately call a physician or the nearest medical facility.

Inhalation - For acute exposure immediately remove person from the contaminated area. For extreme respiratory distress administer oxygen.

Skin - Remove affected clothing and wash the skin area exposed.

Ingestion - While ingestion is unlikely, if such incident occurs refer person to a physician.

Eye - Sand may be irritating to the eyes of sensitive or allergic personnel. In cases of extreme distress wash the eyes carefully and gently with warm water and seek medical attention.

SECTION VII
PRECAUTIONS FOR SAFE HANDLING AND USE

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Clean up with dustless method (use vacuum or wet sweeping). Provide ventilation.

WASTE DISPOSAL METHOD: Follow state and local regulations for solid waste.

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Use dustless system of storage and handling. Keep area well ventilated.

OTHER PRECAUTIONS: Use good housekeeping techniques.

SECTION IX COMMENTS

The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.

The information and recommendations contained herein are based upon data believed to be correct, however, most originated at independent governmental or private sources or in the scientific literature and cover a considerable time span, during which sophistication in equipment procedures, etc., knowledge, and changes in the law occured. The information is offered as a convenience only for use in recipient's own independent verification and/or investigation.

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