1. Essentially similar to OSHA 174 (Sept. 1985).
2. Essentially similar to OSHA 20 (May 1972).
3. May be used to comply with OSHA's Hazard Communication Standard, 29 CFR 1910. 1200 (48 FR 53340) (Nov. 25, 1983). Standards should be consulted for specific requirements.
4. Required under USDL Safety and Health Regulations for ship repairing, ship building, and ship breaking (29 CFR 1915, 1916, 1917).

SECTION I
IDENTIFY

A. Manufacturer's Name: Wedron Silica Company

B. Emergency Telephone Number: (815) 433-2449

C. Address: Wedron Silica Company
P.O. Box 119
Walnut & Jackson Streets
Wedron, Illinois 60557

D. Chemical Names and Synonyms: Silica Dioxide
Silicon Dioxide
Silicon Dioxide, Crystalline
Crystalline Silica
Quartz

E. Trade Names and Synonyms:

Foundry Sand	Silica Sand	Melting Sand
Utility Sand	Silica	Engine Sand
Fracturing Sand	Silica Products	Blasting Sand
	Flint	Traction Sand
	Quartz	Filter Sand

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 17½ (Bagged)

H. Standard Commodity Code (Unground Silica Sand): 14-413-10

I. D.O.T. Classification: Non-Flammable Solid (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
Natural Mineral Extracted From Earth (Inorganic)
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: 14808-60-7

Q. Date Prepared: 25 June 1986

R. Signature of Preparer: Daryl F Hoyt

SECTION II
HAZARDOUS INGREDIENTS

Silica Dioxide — SiO_2 Hazard Data:

Current OSHA PEL 8-HR. TWA (Respirable Dust):

$$\frac{\text{In mppcf } * \quad 300}{\text{Number of Particles Detected}} \qquad \frac{\text{For Respirable Dust In mg/m}^3 \quad 10\ \text{mg/m}^3}{\text{Mass (Weight) of } < 10 \text{ Micron Dust}}$$

$$\overline{\%\ \text{Quartz} + 10} \qquad \overline{\%\ \text{Respirable Quartz} + 2}$$

* Millions of particles per cubic foot of air.

The per cent of quartz in the formula is the amount determined from 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 1910.1000 (Z-3 Table)

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

P.E.L. = Permissable 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 nodulation in the lungs. (Reference: H.E.W. publication #NIOSH 75-120)

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 Repiratory Protection Required Above X**mg/m³
Particulate Concentration 5X** mg/m³ or less	Any dust respirator.
10X** mg/m³ or less	Any dust respirator, except single-use or quarter-mask respirator. Any fume respirator or high efficiency particulate filter respirator. 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 respirator 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 respirator with a high efficiency particulate filter. A Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode.

Greater than 500X** mg/m³ or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode. A combination 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 MSHA-approved equipment should be used.
** X indicates the permissible exposure as defined above.

SAFETY GLASSES AND GLOVES ARE OPTIONAL, DEPENDING ON PRODUCT USE.

Total weight of silica product, as shipped, contains 0.03% or less of respirable size particles (10 microns or smaller).

SECTION III
PHYSICAL/CHEMICAL CHARACTERISTICS

A. Boiling Point: 4046°F 2230°C
B. Vapor Pressure (mm Hg): Not Applicable
C. Vapor Density (air = 1): Not Applicable
D. Soluability in Water: None
E. Appearance and Odor: White to tan/odorless
F. Specific Gravity (H20 = 1): 2.65
G. Melting Point: 3110°F 1710°C
H. Evaporative Rate (Butyl Acetate = 1): None
I. pH: 6.0 to 7.5
J. Percent Solids by Weight: 100%
K. Molecular Weight (calculated): 60.1

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, SiF_4 (silicon tetrafluoride). May be attacked by strong alkalis. Will combine chemically with many metallic oxides upon heating at high temperatures.

C. Hazardous Decomposition or Byproducts: None

D. Hazardous Polymerization: Will Not Occur

E. SiO_2 (Quartz): When exposed to high temperatures, may change crystalline structure to form tridymite (above 870°C) or Crystobalite (above 1470°C) which have greater health hazards than quartz.

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.

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.

EYE CONTACT: Silica sand dust may be an irritant to those sensitive to such exposure. Safety dust glasses or goggles should be worn in these cases.

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.

CARCINOGENICITY: Silicon dioxide is not listed as a carcinogen by the (NTP) Annual Reports or the (IARC) monographs nor has it been found to be a carcinogen or potential carcinogen by OSHA.

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

Source	Data
1. NIOSH-Registry of Toxic Effects of Chemical Substances 1982-Vol 3.	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."	1. TLV-TWA: 10 mg/cu meter-respirable dust. TLV-TWA 30 mg/cu meter-total dust.

3. Dangerous Properties of Industrial Materials: Fourth Edition, S&X Page 1093.	1. Toxic Hazard Rating: Acute Local Inhalation: 2 Acute Systemic: 0 Chronic Local: Inhalation 3 Chronic Systemic: Inhalation 1 2. Toxiology: "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.	1. "Silicosis adult disease (pneumoconosis) of the lungs resulting from over exposure to free SiO_2 dust, usually begins insidiously with symptoms of coughing, dyspnea, wheezing and reapeated non-specific chest diseases.

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

SIGNS AND SYMPTOMS OF EXPOSURE: Symptoms are dyspnea - 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: Cleanup 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 VIII
CONTROL MEASURES

RESPIRATORY PROTECTION: ANSI Z88.2 - 1980 specifications or OSHA Standard #1910.134

VENTILATION: Local exhaust - as appropriate; mechanical (general) - 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/MSHA approved particulate filter respirator. Air-supplied hoods for blasters.

USE WHEN CONDUCTING ABRASIVE BLASTING:

Protective Gloves - leather or equivalent to prevent cuts and abrasions.

Eye Protection - Industrial safety glasses with side shields or goggles.

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

WORK/HYGENIC PRACTICES: Use good housekeeping techniques.

SPECIAL PRECAUTIONS: Use dustless systems for handling, storage, and clean up so that airborne dust does not exceed the 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 customer-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.

SECTION IX

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.

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