

RICCI BROS.

Sand Co., Inc.

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MATERIAL SAFETY DATA SHEET (MSDS)

Revision 6/24/99 renewed 12/1/2002.

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Identity: Crystalline Silica CAS #14808-60-7

MANUFACTURER IDENTIFICATION

Ricci Bros Sand Co., Inc
2099 Dragston Rd. P.O. Box 664 Port Norris NJ USA 08349
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HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Chemical Components: Silica, Crystalline Quartz (respirable). **Specific Chemical Identity:** Silicon Dioxide, SiO₂.

Composition: SiO₂: 95% minimum Balance: Fe₂O₃, CaO, Na₂O, MgO Al₂O₃, K₂O, TiO₂. **Common Identity:** Silica Sand, Crystalline Silica, Sandblast Sand, Filter Sand, Filter Gravel or trade name (**See page two for more trade names).

Permissible Exposure Limits: Exposure to airborne crystalline silica shall not exceed an 8 hour time weighted average (TWA) limit as stated in 29CFR1910.1000 (refer to reference 1). **Threshold Limit Values (TLVs)** for exposure to crystalline silica: **Crystalline silica TLV:** 10/(%crystalline silica +2) mg/m³. **Total silica TLV:** 30/(%crystalline silica +2) mg/m³. **ACGIH TLV:** 0.10mg/m³ for 8 hr time weighted average for 100% crystalline silica (see reference 2). **NIOSH TLV:** 0.05 mg/m³ for 10 hr shift, 40 hr. week for 100% crystalline silica (see reference 3).

PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point: 4046F. **Specific Gravity:** 2.65. **Melting Point:** 3050F. **Vapor Pressure:** none. **Evaporation Rate (Butyl Acetate=1):** none. **Vapor Density (Air=1):** none. **Solubility in water:** insoluble. **Appearance and Odor:** white, grey or tan, no odor or taste.

FIRE, EXPLOSION AND REACTIVITY DATA

Flash Point: non-flammable. **Flammable Limits:** none. **LEL:** none. **UEL:** none. **Extinguishing Media:** none required.

Special Firefighting Procedures: N/A. **Unusual Fire and Explosion Hazards:** N/A **Stability:** stable. **Conditions to avoid:** none. **Incompatibility (materials to avoid):** *Contact with agents such as molten magnesium, fluorine, chlorine trifluoride, manganese trioxide, oxygen difluoride, or hydrofluoric acid may cause fires or corrosive gases.* **Hazardous Polymerization:** will not occur.

HEALTH HAZARD DATA

Routes of Entry: Inhalation? Yes. Skin? No. Ingestion? No. **Acute and Chronic Health Hazards:** *Prolonged exposure to crystalline silica by inhalation may cause silicosis, a fibrosis (scarring) of the lungs which can be progressive and may lead to death.* **Silica as Related to Carcinogenicity:** *Crystalline silica (quartz) inhaled from occupational sources is classified by the International Agency for Research on Cancer (IARC) as class I: carcinogenic to humans (see reference 4);* **Signs and Symptoms of Exposure:** *Shortness of breath, reduced pulmonary function, coughing, wheezing, and possible chest illness.* **Medical Conditions Generally Aggravated by Exposure:** Bronchitis, Emphysema and Asthma. Smoking is known to aggravate the effects of exposure. *Persons with silicosis may develop tuberculosis (reference 5). Exposure to crystalline silica may also result in scleroderma and/or kidney disease (reference 5).* **Emergency First Aid Procedures:** For sand in eyes, immediately flush with water. For gross inhalation, remove person to fresh air and seek medical attention accordingly.

CONTROL MEASURES

Workplace Dust Surveys: *Test the employee personal breathing zone for crystalline silica using dust sampling equipment and real time dust monitoring equipment (refer to reference 9).* **Respiratory Protection:** Use NIOSH/MSHA approved (ANSI Z88.2 Part 11) *particulate* respirators with this product. Put in place a respiratory protection and monitoring program which meets the requirements of 29CFR 1910.134: "Respiratory Protection". (Refer to references 6 and 7). *Select respiratory based on the results of the workplace dust surveys. Use respirators that protect against the highest concentrations of crystalline silica if the actual concentration is unknown. Choose respiratory protection that meets the requirements of the table below (refer to references 3 and 9):*

Concentration of Crystalline

Silica in Multiples of

Standard

Recommended Respirator Type

<=5X

Single use (valveless dust respirator)

<=10X

Quarter or half-mask respirator with replaceable dust filter or single use (with valve) dust respirator OR type C, demand type (negative pressure), with quarter or half mask facepiece

<=100X	Full facepiece respirator with replaceable dust filter OR Type C, demand type (negative pressure), with fullfacepiece
<=200X	Powered air purifying (positive pressure) respirator with replaceable applicable filter or with 99.7% efficient HEPA-type filter
200X	Type C, supplied air respirator, continuous flow type with full facepiece, hood or helmet

Engineering and Administrative Controls Use *designed ventilation systems as the primary method to remove crystalline silica from workplace air. Use administrative controls such as job rotation and water spray to supplement engineering controls and respiratory protection.* If sandblasting use a respirator approved by NIOSH for abrasive blasting operations. Enclose the operation in a properly designed and maintained blasting enclosure (see reference 8). **Other Protective Clothing or Equipment:** *Use gloves, protective clothing and ANSI-approved eye protection with this product.* **Medical Surveillance:** *Make bi-annual annual medical evaluations available to all workers whom may be exposed to crystalline silica. Include in the evaluations the employee medical history, chest X-Ray, pulmonary functions and review by a physician (see reference 3).*

PRECAUTIONS FOR SAFE HANDLING AND USE

Steps to be Taken in Case Material is Released or Spilled: Use dustless method (water or wet HEPA-type vacuum) if not contaminated. Use water sprays and shovels to clean up spills. Do not dry sweep this product with brooms. *Do NOT use compressed air to clean up product.* If contaminated use recommended method for contaminate. **Waste Disposal Method:** Dispose in accordance with federal, state and local regulations. **Work/Hygenic Practices:** Avoid creating and breathing dust. Warn and train your employees and customers of the hazards of this product in accordance with applicable "Right to Know" practices. *Do not smoke if working with silica products. Refer to the guidelines in references 11, 12 and 13 while working with crystalline silica.*

OSHA HAZARD COMMUNICATION

This product falls under the OSHA Hazard Communication Standard 29CFR1910.1200 (see reference 10). Refer to "Hazard Communication Labeling and Warning" document: <http://www.riccisand.com/pages/hazlabel.html>.

REFERENCES

1. Code of Federal Regulations 29CFR1910.1000: "Air Contaminants," Occupational Safety and Health Administration (OSHA), Washington, DC, <http://www.osha.gov>.
2. Threshold Limit Values and Exposure Indices for Chemical Substances in Workroom Air," American Conference of Governmental Industrial Hygienists (ACGIH), Cincinnati, OH 1988, <http://www.acgih.org>.
3. National Technical Information Service, Springfield VA (703/487-4650): Criteria for a Recommended Standard - Occupational Exposure to Crystalline Silica, HEW Publication No. (NIOSH) 75-120, NTIS Acquisition No. PB 246-697, <http://www.ntis.gov>.
4. IARC Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans-Silica and Some Silicates, Coal

Dust and Para-Aramid Fibrils, Vol. 68, 1997 . World Health Organization, International Agency for Research on Cancer (IARC), Lyon, France, 1997, <http://www.iarc.fr>.

5. Crystalline Silica Health Effects. National Industrial Sand Association (NISA), Calverton, MD, 1997. <http://www.riccisand.com/pages/health1.html>.

6. Code of Federal Regulations, 29CFR Part 1910.134: "Respiratory Protection," Occupational Safety and Health Administration (OSHA), Washington, DC 1993. <http://www.osha.gov>.

7. "American National Standards Institute (ANSI) Practices for Respiratory Protection," ANSI Z88.2-1992, ANSI, New York, <http://www.ansi.org>.

8. "Air Quality: Health Standards for Abrasive Blasting...Final Rule," Federal Register 59.34, 2/18/94.

9. ASTM E1132-89 (Reapproved 1993): "Standard Practice for Health Requirements Relating to Occupational Exposure to Quartz Dust," American Society for Testing and Materials (ASTM), Phila, PA, <http://www.astm.org>.

10. Occupational Safety and Health Administration (OSHA) Regulations (Standards - 29 CFR) - 1910.1200 - Hazard Communication, http://www.osha.gov/pls/oshaweb/owasrch.search_form?p_doc_type=STANDARDS&p_toc_level=0.

11. National Institute for Occupational Safety and Health (NIOSH), "A Guide to Working Safely with Silica," 1997. <http://www.cdc.gov/niosh/otherpub.html>.

12. NIOSH Publications (1992-1996). <http://www.cdc.gov/niosh/consilic.html>. Preventing Silicosis and Deaths in Construction Workers--DHHS (NIOSH) Publication No. 96-112. <http://www.cdc.gov/niosh/92-107.html>. Preventing Silicosis and Deaths from Rock Drilling--DHHS (NIOSH) Publication No. 92-107. <http://www.cdc.gov/niosh/92-102.html>. Preventing Silicosis and Deaths from Sandblasting--DHHS (NIOSH) Publication No. 92-102.

13. NIOSH Respirator User's Notice: Attention: All Users of Type CE, Abrasive-Blast Supplied-Air Respirators, National Institute for Occupational Safety and Health (NIOSH), May 23,1996. <http://www.cdc.gov/niosh/abrasi-1.html>.

NOTICE

THE INFORMATION CONTAINED IN THIS MATERIAL SAFETY DATA SHEET IS BELIEVED TO BE CORRECT. RICCI BROS SAND COMPANY, INC. MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AND ASSUMES NO LIABILITY IN CONNECTION WITH ANY USE OF THIS INFORMATION. CUSTOMERS AND USERS OF THESE SILICA PRODUCTS MUST COMPLY WITH ALL APPLICABLE FEDERAL, STATE, LOCAL REGULATIONS, AND MUST SEEK MEDICAL, LEGAL AND TECHNICAL OPINONS REGARDING THEIR USE AND THEIR HAZARDS.

**TRADE NAME LISTING OF SILICON DIOXIDE AS PRODUCED BY RICCI BROS. SAND CO., INC. OTHER TRADE NAMES MAY APPLY.

Industrial Sands: OOO, OO, OON, O, 1, 2, 3, 1Q, 2Q, 3Q, 4Q, 10 grit-50 grit. **Filter Media:** 0.10-3.0 mm. **Foundry Sand:**

AFS 30 thru 100, cement lining sand, P30, P40, etc. **Well Gravel:** OO thru #4. **Gravels:** Sizes 1.2 -63.0mm. **Other Media:** C-3, reactor sand, runway traction sand, torpedo sand, pump sand, pool filter sand, play sand, sewage sand, mason sand.

Blends: O-1 blend, 20-30 grit, 0.8-2.0mm, etc.

