



MSDS NO: PP-002  
PRODUCT TYPE: Proppant Sand  
REVISION DATE: 05 Apr 2013  
Version 3.0

## MATERIAL SAFETY DATA SHEET

### "Frac" Sand Proppant

|               |    |
|---------------|----|
| HEALTH:       | *1 |
| FLAMMABILITY: | 0  |
| REACTIVITY:   | 0  |
| PPE:          | E  |

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## 1. IDENTIFICATION OF SUBSTANCE/MIXTURE AND OF SUPPLIER

*This Material Safety Data Sheet is for the following products:*

### MANUFACTURER:

Preferred Sands  
One Radnor Corporate Center  
100 Matsonford Road, Suite 101  
Radnor, PA 19087

Manufacturer's Phone for General Inquiries: 610-834-1969

Emergency Phone: 1-800-424-9300 (CHEMTREC)

Product Name: Frac Sand Proppant

Specific Use: Proppant Sand

## 2. HAZARDS IDENTIFICATION

**INHALATION:** Quartz or Silica Sand can contain silica dust. Abrasive or aggressive handling of silica sand can generate silica dust. Avoid breathing silica dust. Silica (quartz) is classified as hazardous under the Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.1200. Chronic inhalation of respirable crystalline silica may cause silicosis, a fibrosis or scarring of the lungs. Silicosis may be progressive and may lead to disability and death. Adverse health effects such as lung disease, silicosis, cancer, autoimmune disease, tuberculosis and nephrotoxicity can occur with exposure. There are generally no symptoms or signs of exposure to crystalline silica. Chronic silicosis often has no symptoms. Acute silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

**CANCER:** Crystalline silica inhaled from occupational sources in sufficient concentrations is classified as carcinogenic to humans. In its Ninth Annual Report on Carcinogens, the National Toxicity Program (NTP) listed crystalline silica as a known human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust. The International Agency for Research on Cancer (IARC) has evaluated crystalline silica and determined that crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans.

**AUTOIMMUNE DISEASES:** There is evidence that exposure to respirable crystalline silica (without silicosis) or the disease silicosis may be associated with the increased incidence of several autoimmune disorders, scleroderma, systematic lupus erythematosus, rheumatoid arthritis and disease affecting the kidneys.

**TUBERCULOSIS:** Silicosis increases the risk of tuberculosis.

**NEPHROTOXICITY:** There is evidence that exposure to respirable crystalline silica (without silicosis) or the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease.

**EXPOSURE GUIDELINES TO QUARTZ:** Refer to NIOSH publication including Criteria Document for Crystalline Silica.

**INGESTION:** There are no known hazards associated with ingesting quartz or silica sand. Ingestion of large quantities of coated sand may cause severe abdominal discomfort.

**EYE CONTACT:** Exposure to quartz or silica sand causes eye irritation.



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SKIN CONTACT: Quartz or silica sand may cause skin irritation due to the abrasive nature of repeated contact.

MEDICAL CONDITIONS POSSIBLY AGGRAVATED: No information found.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

| INGREDIENTS  | CAS NUMBER | CONCENTRATION | OSHA PEL-TWA  | ACGIH-TWA TLV               | ACGIH-STEL/CEIL(C) |
|--|------------|---------------|---|-----------------------------|--------------------|
| QUARTZ (SiO <sub>2</sub> )<br>(Crystalline Silica) | 14808-60-7 | 100 %         | 0.098 – 5 mg/m <sup>3</sup> (a)<br>0.294 – 15 mg/m <sup>3</sup> (b) | 0.025 mg/m <sup>3</sup> (a) | Not listed         |

- (a) Respirable  
(b) Total dust respirable particles

NOTE: The OSHA PEL-TWA for respirable crystalline silica is a function of the percentage of crystalline silica in an airborne sample. The OSHA PEL-TWA for total dust respirable particles is determined from the fraction passing a size-selector.

### 4. FIRST AID MEASURES

INHALATION: Remove to fresh air.

INGESTION: Rinse mouth immediately and then dilute by drinking water. Do not induce vomiting unless instructed by a poison control center or doctor. If large amounts of product are ingested or abdominal pain or cramping becomes severe, seek immediate medical attention.

EYE CONTACT: Immediately flush eyes with running water for at least 15 minutes. Seek immediate medical attention.

SKIN CONTACT: Wash affected areas immediately with ample amounts of soap and water.

### 5. FIRE-FIGHTING MEASURES

FIRE AND EXPLOSION HAZARDS: Quartz (silica sand) is non-flammable and non-explosive.

EXTINGUISHING MEDIA: None required

SPECIAL FIRE FIGHTING PROCEDURES: Not applicable to silica (quartz) however for fire fighting ancillary fires where the silica may be present - fire fighters should wear a Self-Contained Breathing Apparatus (SCBA).

UNUSUAL FIRE AND EXPLOSION HAZARDS: Not applicable

HAZARDOUS DECOMPOSITION PRODUCTS: None

Crystalline silica (quartz) is incompatible with hydrofluoric acid, fluorine, chlorine trifluoride, or oxygen difluoride.

### 6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Avoid dust formation. Use personal protection equipment recommended in Section 8. Approved respiratory protection methods should be used. If spill is in well ventilated area, general sweeping and shoveling of material is acceptable.

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Surfaces may be slippery due to roundness of material. Sweep up spilled materials to prevent falls.



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Disposal or recycling per regulations is recommended in accordance with Section 13.

## 7. HANDLING AND STORAGE

**HANDLING:** Avoid dust formation. Avoid inhalation of dusts. Avoid prolonged skin contact. Pour downwind and allow as little free fall as possible when emptying bags into equipment. Breathing must be protected when large quantities are conveyed without local exhaust ventilation.

Do not abrade or crush this material. It is not to be used for abrasive blasting.

**STORAGE:** Keep material only in the original container in a cool, dry, well-ventilated location. Store container away from acids, bases and strong oxidizing agents. Protect from direct sunlight.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**EYE/FACE PROTECTION:** Eye goggles or safety glasses with side shields should be worn when handling material.

**CLOTHING/GLOVES:** Long sleeved shirt, full length pants, safety shoes should be worn when handling material.

**RESPIRATORY PROTECTION:** Utilize effective engineering controls such as local ventilation at the point of use. If over exposure is possible, utilize an approved respirator for dust. Consult applicable regulations to ensure proper training, fit and selection of appropriate and effective respiratory protection.

**VENTILATION:** Use local exhaust ventilation as required to maintain exposures below the occupational exposure limits. Reference ACGIH, Industrial Ventilation – Recommended Practices.

**OTHER/GENERAL PROTECTION:** When exposed to material, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                 |                   |                                       |                |
|-----------------|-------------------|---------------------------------------|----------------|
| PHYSICAL STATE: | Solid             | EVAPORATION RATE (BUTYL ACETATE=1.0): | Not applicable |
| COLOR:          | White or tan sand | VAPOR PRESSURE:                       | Not applicable |
| ODOR:           | Odorless          | VAPOR DENSITY (AIR=1):                | Not applicable |
| PH:             | N/A               | SPECIFIC GRAVITY (Water = 1):         | 2.65 g/ml      |
| BOILING POINT:  | Not applicable    | SOLUBILITY IN WATER:                  | Not soluble    |
| FLASH POINT:    | Not applicable    | MELTING POINT:                        | 3110F          |

## 10. STABILITY AND REACTIVITY

|                                   |   |
|-----------------------------------|---|
| STABILITY:                        | The material is stable if stored and handled as indicated.  |
| CONDITIONS TO AVOID:              | Contact with powerful oxidizing agents such as hydrofluoric acid, fluorine, chlorine trifluoride, or oxygen difluoride, may cause fires |
| HAZARDOUS POLYMERIZATION:         | Hazardous polymerization will not occur.  |
| INCOMPATIBILITY:                  | Strong acids, strong bases, strong oxidizers.   |
| HAZARDOUS DECOMPOSITION PRODUCTS: | Silica will dissolve in hydrofluoric acid and produce corrosive gas – silicon tetrafluoride.  |



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## 11. TOXICOLOGICAL INFORMATION

**ACUTE EFFECTS:** See Section 2, *Hazards Identification*, for the hazards associated with the inhalation of silica dust.

**CHRONIC EFFECTS:** Smoking may aggravate the effects of exposure and may increase the risk of developing respiratory disease from exposure to respirable crystalline silica dust. Consult with your employer and your doctor for further information or if you believe you may be developing any breathing problems. There is some evidence that breathing respirable crystalline silica or the disease silicosis is associated with an incidence of significant disease endpoint such as scleroderma (an immune system disorder manifested by fibrosis of the lungs, skin and other internal organs) and kidney disease. Silicosis is also reported to increase the risk of tuberculosis.

**TSCA SECTION 8(b):** The major concern is silicosis (lung disease), caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic or ordinary silicosis, simple silicosis, Progressive Massive Fibrosis (PMF) or complicated silicosis, accelerated, or acute silicosis.

Chronic or Ordinary Silicosis is the most common and can occur after many years of exposure to levels above the occupational exposure limits for airborne respirable crystalline silica dust.

Simple Silicosis may be progressive and may develop into complicated silicosis or PMF.

PMF or Complicated Silicosis symptoms, if present, are shortness of breath, wheezing, cough and sputum (lower airway mucus) production. It is associated with decreased lung function and may be disabling. Advanced PMF or complicated silicosis can lead to heart disease secondary to the lung disease.

Accelerated and Acute Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a short period of time, typically within 5 years for accelerated silicosis and as short as a few months for acute silicosis.

Excessive inhalation of silica dust can present delayed long term and permanent health hazards.

Exposure guidelines for quartz – refer to NIOSH publication including Criteria Document for Crystalline Silica. This product is not known to have respirable crystalline silica dust above the personal exposure limits (PEL) when handled and used per the recommended procedures. See Section 7. *Handling and Storage*.

Appropriate PPE and good ventilation is required when handling this material.

This product is not to be used for abrasive blasting.

**LISTED CARCINOGENS:** Crystalline silica

## 12. ECOLOGICAL INFORMATION

Crystalline silica is not known to be toxic to the ecology.

Polyurethane resin is not known to be toxic to the ecology.

## 13. DISPOSAL CONSIDERATIONS

**WASTE DISPOSAL:** Uncontaminated waste product is not a hazardous waste as defined by the U.S. Resource Conservation and Recovery Act. Dispose of in accordance with applicable federal, state, and local government regulations.

## 14. TRANSPORT INFORMATION

**UN NUMBER:** Not applicable

**UN PROPER SHIPPING NAME:** Not applicable

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TRANSPORT HAZARD CLASS(ES): Not applicable  
 PACKING GROUP, IF APPLICABLE: Not applicable  
 ENVIRONMENTAL HAZARDS: None  
 TRANSPORT IN BULK: Not applicable  
 SPECIAL PRECAUTIONS: None

## 15. REGULATORY INFORMATION

TSCA: Quartz (SiO<sub>2</sub>) is listed in the TSCA inventory.

CERCLA REPORTABLE QUANTITY: Not applicable

CLEAN AIR ACT - HAZARDOUS AIR POLLUTANT (HAPS): Not applicable

SARA TITLE III:

SECTION 302: Not regulated

SECTION 312: Acute and Chronic health hazard

SECTION 313: This product meets the definition of an article, and is exempt from reporting under Section 313.

CALIFORNIA STATE PROPOSITION 65: Crystalline silica is known to the state of California to be a carcinogen.

CANADIAN REGULATIONS: All information required by the Controlled Products Regulation (CPR) is contained in this MSDS. Product classified according to the hazards criteria of CPR.

CANADIAN ENVIRONMENTAL PROTECTION AGENCY (CEPA): All chemical substances are listed on the Domestic Substance List (DSL) or otherwise are in compliance with CEPA new substances notification requirements.

WHMIS: Class D 2A

OTHER: EINECS No.: 231-545-4

EEC Label (Risk/Safety Phrases) R 48/20, R 40/20, S22, S38

IARC: Crystalline silica (quartz) is classified in IARC Group 1.

National, state, city, county or local emergency planning, community right to know or other laws, regulations, or ordinances may be applicable – consult applicable national, state, provincial, or local laws.

## 16. OTHER INFORMATION

### Hazardous Material Identification System (HMIS):

|               |    |  |
|---------------|----|--|
| HEALTH:       | *1 | Ratings are based on 0-4 rating scale, with 0 representing minimal hazard or risk, and 4 representing severe hazard or risk. |
| FLAMMABILITY: | 0  |  |
| REACTIVITY:   | 0  |  |
| PPE:          | E  | * Indicates that the material may have chronic health affects.<br>E: Safety glasses, gloves and a dust respirator            |



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