

# Material Safety Data Sheet



**MISSISSIPPI SAND, LLC.**  
MANUFACTURE AND DISTRIBUTION OF FRAC SAND

I – PRODUCT IDENTIFICATION	
MANUFACTURER:  Mississippi Sand, LLC	PRODUCT NAME: Frac Sand (Quartz) (Silicon Dioxide) (St. Peters Sandstone)
ADDRESS: 2320 Creve Coeur Mill Rd. Maryland Heights, MO 63043	DATE OF REVISION: June 18, 2008
INFORMATIONAL TELEPHONE:	314-344-0070

II – PRODUCT AND COMPONENT DATA			
COMPONENT NAME	CAS REGISTRY NO.	% (APPROX.)	EXPOSURE LIMITS
Sandstone (composition variable)		100%	See Section VI
Largely composed of Silica (SiO <sub>2</sub> )	14808-60-7	>95%	
Remainder is made up of various other oxides and trace elements, of which CaO, MgO, and Fe <sub>2</sub> O <sub>3</sub> are the largest percentages.		<5%	

III – PHYSICAL DATA			
BOILING POINT:	N/A	SPECIFIC GRAVITY:	2.7
VAPOR PRESSURE:	N/A	VAPOR DENSITY:	N/A
SOLUBILITY IN WATER:	Negligible	% VOLATILE BY VOLUME AT 68°F:	0%
APPEARANCE AND ODOR: Fine, angular, sugar-like particles, white, tan or pale gray. No odor.			

IV – FIRE AND EXPLOSION HAZARD DATA			
FLASH POINT:	Not Flammable	METHOD USED:	N/A
LOWER FLAMMABLE LIMIT:	Not Flammable	UPPER FLAMMABLE LIMIT:	Not Flammable
EXTINGUISHING MEDIA:	None required		
SPECIAL FIRE FIGHTING PROCEDURES:	None required		
UNUSUAL FIRE AND EXPLOSION HAZARDS:	Contact with strong oxidizing agents may cause fire and/or explosion.		

V – REACTIVITY DATA			
STABILITY:	Stable	CONDITIONS TO AVOID:	Avoid incompatible materials (below)
INCOMPATIBILITY:	Contact with powerful oxidizing agents such as fluorine, boron trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosion. Silica dissolves in hydrofluoric acid, producing a corrosive gas: silicon tetrafluoride.		
HAZARDOUS DECOMPOSITION PRODUCTS:	Handling may produce silica-containing respirable dust particles.		

## VI – HEALTH HAZARD / FIRST AID INFORMATION

PRIMARY ROUTES OF ENTRY: INHALATION   X   SKIN        INGESTION        EYES       

<p><b>EXPOSURE LIMITS:</b> (expressed in 8-hour time-weighted averages-TWA)</p>	<p><b>Other Particulates:</b> TLV<sub>INHALABLE</sub> = 10 mg/m<sup>3</sup>; TLV<sub>RESPIRABLE</sub> = 3 mg/m<sup>3</sup>; OSHA PEL<sub>TOTAL</sub> = 15 mg/m<sup>3</sup>; OSHA PEL<sub>RESPIRABLE</sub> = 5 mg/m<sup>3</sup>  <b>Respirable Silica:</b> TLV = 0.025 mg/m<sup>3</sup>; MSHA/OSHA PEL = 10 mg/m<sup>3</sup> / (%SiO<sub>2</sub> + 2)  <i>At 95% SiO<sub>2</sub>, the MSHA/OSHA PEL = 3.4 mg/m<sup>3</sup></i></p>
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<p><b>MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE:</b></p>	<p>Inhaling respirable dust or crystalline silica may aggravate existing respiratory system diseases/dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions.</p>
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**SHORT-TERM (ACUTE) HEALTH EFFECTS:**

<p><b>INGESTION:</b></p>	<p>Practically non-toxic. However, ingestion of large amounts may cause gastrointestinal irritation and blockage.</p>
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<p><b>TREATMENT:</b></p>	<p>If conscious, give large quantity of water. Do not induce vomiting. NEVER MAKE AN UNCONSCIOUS PERSON DRINK OR VOMIT. Get immediate medical attention.</p>
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<p><b>EYES:</b></p>	<p>Direct contact with dust may cause irritation by mechanical abrasion.</p>
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<p><b>TREATMENT:</b></p>	<p>Flush eyes with plenty of clean water for at least 15 minutes, while holding lid open. Occasionally lift lids to ensure thorough rinsing. Contact physician if irritation persists or later develops.</p>
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<p><b>SKIN:</b></p>	<p>Direct contact may cause irritation by mechanical abrasion. Not expected to absorb through dermal contact.</p>
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<p><b>TREATMENT:</b></p>	<p>Wash with soap and water. Contact a physician if irritation persists or later develops.</p>
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<p><b>INHALATION:</b></p>	<p>Dust may irritate nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath may occur following exposures in excess of exposure limits.</p>
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<p><b>TREATMENT:</b></p>	<p>Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.</p>
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**LONG-TERM (CHRONIC) HEALTH EFFECTS:**

Prolonged and repeated exposure to respirable crystalline silica-containing dust can cause silicosis, a lung disease, which can increase risks of pulmonary tuberculosis infection. Silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms may include, but not limited to, shortness of breath, difficulty breathing, coughing, diminished work capacity, diminished chest expansion, reduction of lung volume, and right heart enlargement or failure. Smoking may increase risk of developing lung disorders.

Research also shows there may be associations between excessive crystalline silica exposure and adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. Respirable crystalline silica has also been listed by the IARC and NTP as a “known human carcinogen” and by the ACGIH as a suspected human carcinogen. Crystalline silica is also considered a carcinogen by the state of California.

## VII – PERSONAL PROTECTION AND CONTROL MEASURES

RESPIRATORY PROTECTION:	For respirable silica levels that are likely to exceed 8-hr TWA of 0.025 mg/m <sup>3</sup> , a NIOSH/MSHA approved half-mask N95 or better respirator must be worn. For levels exceeding 0.25 mg/m <sup>3</sup> , a full face N95 respirator must be worn, which must comply with MSHA/OSHA standards, including training program, fit testing, etc. For levels exceeding 1.25 mg/m <sup>3</sup> , consult an industrial hygienist or safety professional.
VENTILATION:	Local exhaust or general ventilation should be adequate to maintain exposure levels below limits.
SKIN PROTECTION:	Wear impervious gloves, shoes, and protective clothing to prevent skin contact. (See also Hygiene Section)
EYE PROTECTION:	Wear safety glasses with side shields, at a minimum. Dust goggles are recommended when work conditions are excessively dusty. Wearing contact lenses when using this product is not recommended.
HYGIENE:	Wash dust-exposed skin with soap and water before eating, drinking, smoking, or using toilet facilities. Wash work clothes after each use.
OTHER CONTROL MEASURES:	Respirable dust and silica levels should be monitored regularly. Dust and silica levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

## VIII – STORAGE AND HANDLING PRECAUTIONS

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. The personal protection and controls identified in Section VII of this MSDS should be applied as appropriate.

Do not store near food and beverages or smoking materials.

Avoid accidental releases.

## IX – SPILL, LEAK, AND DISPOSAL PRACTICES

Personal protection and controls identified in Section VII of this MSDS should be applied as appropriate.

Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Wetting of spilled material and use of respiratory protection may be necessary. Do not dry sweep spilled material.

None of the components in this product are subject to reporting requirements of Title III of SARA, 1986, and 40 CFR 372. However, the component crystalline silica is considered a hazardous chemical and a delayed health hazard.

### MATERIAL DISPOSAL METHOD:

Pick up and re-use clean material. Dispose of contaminated material in accordance with all applicable federal, state, and local laws and regulations.

## X – TRANSPORTATION

DOT HAZARD CLASSIFICATION: None

PLACARD REQUIRED: None

LABEL REQUIRED:

Label as required by OSHA Hazard Communication standard [29 CFR 1910.1200 (f)] and applicable state and local laws and regulations.

Some constituents of this product are considered by OSHA to be hazardous and should be included in an employer's hazard communication program.

## XI – OTHER INFORMATION

Abbreviations:

CAS No.	Chemical Abstract Service number
OSHA	Occupational Safety and Health Administration
MSHA	Mine Safety and Health Administration
PEL	Permissible Exposure Limit
ACGIH	American Conference of Governmental Industrial Hygienists
TLV	Threshold Limit Value
TWA	Time Weighted Average (8-hour)
CL	Ceiling Limit
mg/m <sup>3</sup>	Milligrams per cubic meter
IARC	International Agency for Research on Cancer
NTP	National Toxicology Program
NIOSH	National Institute for Occupational Safety and Health
>	Greater than
<	Less than
DOT	U.S. Department of Transportation
TDG	Transportation of Dangerous Goods
CFR	Code of Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
SARA	Superfund Amendments and Reauthorization Act

*Information in this MSDS was obtained from sources believed to be reliable. It is believed to be current and accurate at the time provided. It is the user's obligation to determine the conditions of safe use of this product.*