



## MATERIAL SAFETY DATA SHEET

February 3, 2010

### SECTION 1 CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**Product Name:** Sand and Gravel (Construction Aggregate)

**Manufacturer's Name and Address:**

Salt River Materials Group  
Phoenix Cement Company  
8800 E. Chaparral Rd. Suite 155  
Scottsdale, AZ 85250-2606

**24-Hour Emergency Telephone:** CHEMTREC: 1-800-424-9300

**Customer Service:** Phone: (480) 850-5757 Fax: (480) 850-4333

**Product Identifiers:** Natural Sand, River Sand Screenings, Aggregates, Bank Sand, Crushed Gravel, Round Gravel, Concrete Sand, Asphalt Sand, Mason Sand, Fill Sand, Gravel, Crushed Rock, Crushed Stone

### SECTION 2 COMPOSITION/INFORMATION ON INGREDIENTS

	<u>CAS No.</u>	<u>% by weight</u>
Natural Sand and Gravel	None	100
Composition varies naturally-typically contains some quartz Crystalline silica	14808-60-7	>1

**SECTION 3**

**HAZARD IDENTIFICATION**

**EMERGENCY OVERVIEW**

**Warning**

Dust may irritate eyes, skin and respiratory tract. Avoid breathing excessive dust. Breathing silica-containing dust from prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Several scientific organizations have classified crystalline silica as causing lung cancer in humans. Silicosis or lung cancer can result in permanent injury or death.

**POTENTIAL HEALTH EFFECTS**

**Primary Routes of Exposure**

Inhalation and contact with the eyes and skin

**Eyes:**

Direct contact with dust may cause irritation by mechanical abrasion.

**Skin:**

Direct contact may cause irritation by mechanical abrasion. Not expected to be a significant exposure route for dermal absorption.

**Inhalation:**

Dust may irritate the nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath may occur following exposures in excess of appropriate exposure limits.

**Ingestion:**

Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation and blockage.

**Effects Following Prolonged or Repeated Exposure:**

Exposure to high levels of respirable crystalline silica is associated with silicosis, lung cancer, and autoimmune disorders. For additional information, see Section 11.

**Carcinogenicity:**

Crystalline silica, a component in this product, has been listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and/or the Occupational Safety and Health Administration (OSHA). For additional information, see Section 11.

**Signs and Symptoms of Exposure:**

Symptoms of silicosis may include (but are not limited) to shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure.

**Medical Conditions Aggravated by Exposure:**

Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

<b>SECTION 4</b>	<b>FIRST AID MEASURES</b>
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**Eyes:**

Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or later develops.

**Skin:**

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists or later develops.

**Inhalation:**

Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or if breathing is difficult.

**Ingestion:**

If person is conscious, do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

**Note to Physician:**

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

<b>SECTION 5</b>	<b>FIRE FIGHTING MEASURES</b>
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**Flash point:**

Not applicable

**Auto ignition temperature:**

Not determined

**Flammable limits:**

LEL: Not applicable

UEL: Not applicable

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**Extinguishing Media:**

The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

**Special Firefighting Procedures:**

None

**Unusual Fire and Explosion Hazards:**

Contact with powerful oxidizing agents may cause fire and/or explosions (See Section 10 of MSDS).

<b>SECTION 6</b>	<b>ACCIDENTAL RELEASE MEASURES</b>
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**Precautions if Material is Spilled or Released:**

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 9 of this MSDS. Spilled materials, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Prevent spilled materials from entering streams, drains, or sewers.

**Waste Disposal Methods:**

Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

**Environmental Precautions:**

Not applicable

<b>SECTION 7</b>	<b>HANDLING AND STORAGE</b>
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**Handling:**

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this MSDS as appropriate.

MANUFACTURED SAND MADE FROM THIS PRODUCT MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.

**Storage:**

Do not store near food and beverages or smoking materials.

**SECTION 8****EXPOSURE CONTROL / PERSONAL PROTECTION****Engineering Controls:**

Activities that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below allowable exposure limits.

**PERSONAL PROTECTION****Respiratory:**

All respirators must be NIOSH-approved for the exposure levels present (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits (See table below). For respirable silica levels that exceed or are likely to exceed an 8-hour Time Weighted Average (TWA) of  $0.5 \text{ mg/m}^3$ , a high efficiency particulate filter respirator must be worn at a minimum. However, if respirable silica levels exceed or are likely to exceed an 8-hour TWA of  $0.5 \text{ mg/m}^3$  a positive pressure, full face respirator equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.1340) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	$15 \text{ mg/m}^3$ (total dust) $5 \text{ mg/m}^3$ (respirable fraction)	$10 \text{ mg/m}^3$ (inhalable fraction) $3 \text{ mg/m}^3$ (respirable fraction)	NE
Respirable dust containing silica	$10 \text{ mg/m}^3 \div (\% \text{ silica}+2)$	Use respirable silica TLV	Use respirable silica REL
Total dust containing silica	OSHA: $30 \text{ mg/m}^3 \div (\% \text{ silica}+2)$ MSHA: $30 \text{ mg/m}^3 \div (\% \text{ silica}+3)$	NE	NE
Respirable Crystalline silica (quartz)	NE - Use respirable dust PEL	$0.25 \text{ mg/m}^3$	$0.05 \text{ mg/m}^3$
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	$\frac{1}{2}$ of OSHA and MSHA PEL for respirable dust	$0.25 \text{ mg/m}^3$	$0.05 \text{ mg/m}^3$

**Eye:**

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated.

**Skin:**

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

MSDS – Sand and Gravel

**Other:**

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

<b>SECTION 9</b>	<b>PHYSICAL AND CHEMICAL PROPERTIES</b>
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**Appearance and Odor:**

Angular or round multicolored particles. No odor.

**Specific Gravity (H<sub>2</sub>O = 1):**

2.55 – 2.80

**Vapor Density (Air = 1):**

Not Applicable

**Vapor Pressure (mmHg):**

Not applicable

**Evaporation Rate (Butyl Acetate = 1):**

0

**% Volatile:**

Not applicable

**Boiling Point:**

Not applicable

**Melting Point:**

Not applicable

**Solubility in Water:**

0

**pH:**

Not applicable

<b>SECTION 10</b>	<b>STABILITY AND REACTIVITY</b>
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**Stability:**

Stable under normal temperatures and pressures.

**Incompatibility (Materials to Avoid):**

Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, an oxygen difluoride may cause fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

**Hazardous Polymerization:**

Not known to occur

**Hazardous Decomposition or Byproducts:**

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F) Both

## MSDS – Sand and Gravel

tridymite and cristobalite are other forms of crystalline silica and are considered more fibrogenic to the lungs than quartz.

### **Conditions to Avoid:**

Contact with incompatible material should be avoided. See sections 5 and 7 for additional information.

<b>SECTION 11</b>	<b>TOXICOLOGICAL INFORMATION</b>
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### **Acute Effects:**

No specific data on product.

### **Effects Following Prolonged or Repeated Exposure:**

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 year of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to, the following: shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to); shortness of breath, cough, fever, weight loss, and chest pain.

Respirable dust containing newly broken silica particles has been shown to be more hazardous to animal in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animal than equal exposure of respirable dust containing newly broken particles of silica.

There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

## MSDS – Sand and Gravel

### **Carcinogenicity:**

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether or not lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as a “known human carcinogen.” In 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

## **SECTION 12**

## **ECOLOGICAL INFORMATION**

### **Aquatic Ecotoxicological Data:**

No specific data on this product. Not expected to be toxic to aquatic organisms.

### **Environmental Fate Data:**

No specific data on this product.

### **Other:**

No specific data on this product.

## **SECTION 13**

## **DISPOSAL CONSIDERATIONS**

Place contaminated material in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

## **SECTION 14**

## **TRANSPORT INFORMATION**

### **DOT Proper Shipping Name:**

Not regulated.

### **DOT Hazard Classification:**

Not applicable.

### **UN/NA Number:**

Not regulated.

### **DOT Packing Group:**

Not applicable.

**Labeling Requirements:** Not applicable. Label as required by the OSHA Hazard Communication standard [29 CFR 1910.1200(f)], MSHA Hazard Communication standard [30 CFR Part 47] and applicable state and local regulations.

**SECTION 15**

**REGULATORY INFORMATION**

**CERCLA/SUPERFUND:** Releases of this material to air, land, or water are not reportable to the National Response Center under the comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.

**SARA Title III:** Section 302 extremely hazardous substances:  
None

Section 311/312 Hazard categories:  
Delayed Health

Section 313 reportable at or above the minimum concentrations:  
None

**TSCA:** The components in this product are listed on the TSCA inventory or are exempt.

**California Proposition 65:** This product contains a chemical (crystalline silica) known to the State of California to cause cancer.

**State Regulatory Lists:** Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

**SECTION 16**

**OTHER INFORMATION**

**Prepared by:**  
Phoenix Cement Company

**Approved by:**  
Phoenix Cement Company

**Approval Date or Revision Date:**  
February 3, 2010

**Date of Previous MSDS:**  
2004

## MSDS – Sand and Gravel

### **NOTE:**

Users are advised to make their own determinations as to the suitability of the information in this Data sheet in relation to their particular purposes and specific circumstances. Each user should read the data sheet and consider the information in the context of how the product will be handled and used in the workplace and in conjunction with other substances or products. Individual responsibility must be taken as to proper use and handling of the product. The manufacturer makes no warranty expressed or implied regarding the accuracy of the information in this data sheet, or the results to be obtained in the use of the product.

### **DISCLAIMER:**

While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of Natural Sand and Gravel as it is commonly used, the sheet cannot anticipate and provide all the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product.

SELLER MAKES NO WARRANTY, EXPRESSED OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY Phoenix Cement Company, except that the product shall conform to contracted specification. The information provided herein was believed by Phoenix Cement Company to be accurate at the time of preparation or prepared from sources believed to be reliable. It is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quality of product in respect of which damages are claimed, in no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

In particular, the data furnished in this sheet does not address hazards that may be posed by other material mixed with Gypsum products. Users should review other relevant material safety data sheets before working with this product.