

SAFETY DATA SHEET

Section 1: Identification of substance/preparation and of the company/undertaking

Identity: Arizona sand including Arizona Test Dust; Arizona Road Dust; Arizona Silica; AC Fine and AC Coarse Test Dusts; SAE Fine and Coarse Test Dusts; J726 Test Dusts; ISO 12103-1, A1 Ultrafine Test Dust; ISO 12103-1, A2 Fine Test Dust, ISO 12013-1, A3 Medium Test Dust; ISO 12103-1, A4 Coarse Test Dust; MIL STD 810E Blowing Dusts.

Uses of substance: Primarily used for testing filtration products as well as other automotive, aerospace and military mechanical components.

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Section 2: Composition/information on ingredients

Typical chemical composition of Arizona Sand:

Arizona Sand is a naturally occurring material containing the following chemicals:

Chemical	CAS Number	EC Number	% Of Weight	Risk Phrases	Hazard Symbols
Silicon Dioxide-SiO ₂	14808-60-7	238-878-4	68-76%	R20, R33, R36, R37, R45, R48, R49	Xi
Alumina Oxide-Al ₂ O ₃	1344-28-1	215-691-6	10-15%	R36, R37	Xi
Ferric Oxide-Fe ₂ O ₃	1309-37-1	215-168-2	2-5%	R33, R36, R37,	Xi
Sodium Oxide-Na ₂ O	1313-59-3	215-208-9	2-4%	R36, R37, R38	Xi, O
Calcium Oxide-CaO	1305-78-8	215-138-9	2-5%	R20, R21, R34, R38	C
Magnesium Oxide-MgO	1309-48-4	215-171-9	1-2%	R36, R37	Xi
Titanium Oxide-TiO ₂	13463-67-7	236-675-5	0.5-1.0%	R20, R49	Xi
Potassium Oxide-K ₂ O	7447-40-7	231-211-8	2-5%	R36	Xi

Loss on Ignition 2 - 5 %

*See Section 16 for Risk Information Phrases.

Section 3: Hazards Identification

R phrases for preparation:

R20: Harmful by inhalation
R33: Danger of cumulative effects
R36: Irritating to eyes
R37: Irritating to respiratory system
R45: May cause cancer
R48: Danger of serious damage to health by prolonged exposure
R49: May cause cancer by inhalation

Eye Contact: (Acute/Chronic) Exposure to airborne dust may cause immediate or delayed irritation or inflammation of the cornea.

Inhalation: (Chronic) Inhalation exposure to free silica may cause delayed lung injury, including silicosis, a disabling and potentially fatal lung disease, and/or cause or aggravate other lung diseases or conditions.

Skin Contact: This material contains Sodium Oxide and Calcium Oxide, which may be harmful or irritating to skin.

Ingestion: No adverse effects.

Carcinogenic Potential: This material contains respirable crystalline silica (quartz). Crystalline silica (quartz) inhaled from occupational sources is classified as carcinogenic to humans.

Environmental effects: This material, which contains crystalline silica (quartz), is not known to be ecotoxic; i.e., there are no data suggesting crystalline silica (quartz) is toxic to birds, fish, invertebrates, microorganisms or plant.

Potential Health Effects: Potential health effects may vary depending upon the duration and degree of exposure.

Section 4: First Aid Measures

Eyes: Immediately flush eye thoroughly with water. Get medical attention if irritation persists.

Skin: N/A

Inhalation: Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside.

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician if discomfort is experienced.

Section 5: Fire-fighting measures

Flash Point: N/A

Auto ignition Temperature: Not combustible

Flammable Limits: N/A

Extinguishing Media: Not Combustible

Hazardous Combustion Products: None

Lower Explosive Limit: None

Upper Explosive Limit: None

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: None

Section 6: Accidental Release Measures

Use personal precautions such as:

Respiratory Protection: Use local exhaust or general dilution ventilation to control dust levels below applicable exposure limits. Minimize dispersal of dust into the air. Use appropriate approved respiratory protection for respirable crystalline silica.

Eye Protection: Wear safety glasses with side shields or goggles to avoid contact with the eyes. In extremely dusty environments and unpredictable environments, wear tight-fitting unvented or indirectly vented goggles to avoid eye irritation or injury.

Use clean-up methods that do not disperse dust into the air. Avoid inhalation of dust and contact with eyes. Use exposure control and personal protection methods as described in Section 8.

Use environmental precautions such as: There are no environmental precautions that need to be taken.

Methods for cleanup: Use a vacuum or other appropriate cleaning device that does not generate airborne dust.

Section 7: Handling and Storage

Handling: Use adequate ventilation and dust collection.

Storage: Store in a manner so that airborne dust does not exceed applicable exposure limits. Store in a closed container.

Uses: Primarily used for testing filtration products as well as other automotive, aerospace and military mechanical components.

Section 8: Exposure Controls/Personal Protection

VME Arizona Test Dust: 10/X {% SiO₂} +2

MEL Arizona Test Dust: 8 hr- TWA 0.4 mg/m³

Local Exhaust Ventilation: Use sufficient local exhaust ventilation to reduce the level of respirable crystalline silica.

Respiratory protection: Use appropriate, approved respiratory protection for respirable crystalline silica.

Hand protection: Hand protection is not needed, as the material does not pose a health risk to skin.

Eye protection: Wear safety glasses with side shields or goggles to avoid contact with the eyes. In extremely dusty environments and unpredictable environments, wear tight-fitting unvented or indirectly vented goggles to avoid eye irritation or injury.

Skin protection: Skin protection is not needed, as the material does not pose a health risk to skin.

Section 9: Physical and chemical properties

Appearance:	Tan, Brown, Light Brown, Reddish Brown.
Odor:	No Odor
Flash point:	Non flammable
Flammability:	Non flammable
Explosive properties:	Not explosive
Boiling Point:	2212 °C
Melting Point:	1615 (+-75) °C
Specific Gravity (H₂O = 1.0):	2.65
Vapor Pressure:	Not applicable
Solubility in Water:	Insoluble
Fat Solubility:	Insoluble
Physical State:	Solid
Vapor Density:	Not applicable

Section 10: Stability and Reactivity

Stability:	Product is stable
Incompatibility (Materials to Avoid):	Strong Acids
Hazardous Decomposition:	Will not occur
Hazardous Polymerization:	Will not occur
Conditions to Avoid:	None

Section 11: Toxicological Information

Potential Health Effects: Potential health effects may vary depending upon the duration and degree of exposure. To reduce or eliminate health hazards associated with this product, use exposure controls or personal protection methods as described in Section 8.

Eye Contact: (Acute/Chronic) Exposure to airborne dust may cause immediate or delayed irritation or inflammation of the cornea.

Inhalation:

-Silicosis

The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute. Chronic or Ordinary Silicosis (often referred to as Simple Silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability.

Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling.

Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (corpumonale). Accelerated Silicosis can occur with exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of initial exposure. Progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that lung lesions appear earlier and progression is more rapid.

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.

Carcinogenic Potential: IARC - The International Agency for Research on Cancer ("IARC") concluded that there was "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite from occupational sources", and that there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is *carcinogenic to humans (Group 1)*." The IARC evaluation noted, "Carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, and "Silica, Some Silicates..." (1997).

Section 12: Ecological Information

No ecological concerns have been identified.

Section 13: Disposal Considerations

All disposal methods must be in accordance with all local laws and regulations. Regulations may vary in different locations. Waste characterization and compliance with applicable laws are the responsibility solely of the waste generator.

The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust.

Section 14: Transportation information

UN number not assigned.

Not classified as dangerous goods under ADR (road), RID (train) or IMDG (ship).

Section 15: Regulatory Information

VME Arizona Test Dust: 10/X {% SiO₂} +2
MEL Arizona Test Dust: 8 hr- TWA 0.4 mg/m³

Arizona Sand

Chemical	EC Number	Hazard Symbols
SiO ₂	238-878-4	Xi
Al ₂ O ₃	215-691-6	Xi
Fe ₂ O ₃	215-168-2	Xi
Na ₂ O	215-208-9	Xi, O
CaO	215-138-9	C
MgO	215-171-9	Xi
TiO ₂	236-675-5	Xi
K ₂ O	231-211-8	Xi

Symbols: C: Corrosive, O: Oxidizing Agent, Xi: Irritant

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

Section 16: Other Information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. It is the user's obligation to determine the conditions of safe use of this product.

R20: Harmful by inhalation
R21: Harmful in contact with skin
R33: Danger of cumulative effects
R34: Causes burns
R36: Irritating to eyes
R37: Irritating to respiratory system
R38: Irritating to skin
R45: May cause cancer
R48: Danger of serious damage to health by prolonged exposure
R49: May cause cancer by inhalation

Substances defined as carcinogens for the purpose of the COSHH regulations (risk phrase R45)

European Union (EU):

European Inventory of Existing Commercial Chemical Substances:

All components of this product are included EINECS/ELINCS

IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, and "Silica, Some Silicates..." (1997).