

Safety Data Sheet

Material Name: Crushed Glass Abrasive



Section 1 - IDENTIFICATION

Material Name: Crushed Glass Abrasive

Other Identification: Black Diamond Crushed Glass, Abrasive

Recommended Use: Blast abrasives and other aggregate uses.

Manufacturer Information

US Minerals, Inc.
18635 West Creek Drive
Tinley Park, IL 60477

Phone: (708) 623-1935
Fax: 219-864-4675
Emergency # (800) 803-2803; (800) 424-9300 (ChemTrec)

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with 29 CFR §1910.1200

Physical	Health
Not Hazardous	Carcinogenicity Category 1
	Specific Target Organ Toxicity (Repeated Exposure) Category 1 (respiratory system, lungs)



DANGER

HAZARD STATEMENTS:

May cause cancer or damage to respiratory system through prolonged or repeated exposure by inhalation.
May cause eye irritation if particles or dust get in eyes.
May cause upper respiratory tract irritation.
May cause skin irritation.
Harmful if swallowed.

PRECAUTIONARY STATEMENTS:

Prevention

Do not handle until all safety precautions presented in this SDS have been read and understood.
Avoid breathing dust.
Wear respiratory protection in case of inadequate ventilation.
Wear eye protection.
Wash exposed skin after handling.
Use personal protective equipment as required based on conditions of exposure.

Refer to Section XI of SDS for details of specific health effects of components.

Response:

If inhaled excessively: Move person to fresh air, seek medical attention if necessary.
If in eyes: Rinse with water, seek medical attention if discomfort persists.
If on skin: Rinse with water, seek medical attention if irritation persists.
If swallowed: Rinse mouth, seek medical attention if necessary.

Storage:

Store bags in dry place; avoid tearing bags.

Disposal:

Disposal of contents / containers in accordance with all applicable regulations.

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Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CASRN	Component	Percent (% by wt.)
61790-53-2	Amorphous Silica (Silicon Dioxide)	90 - 99
1313-59-2	Sodium Oxide	5 - 10
1305-78-8	Calcium Oxide	1 - 5
1309-48-4	Magnesium Oxide	<1
12136-45-7	Potassium Oxide	<1
1309-37-1	Iron oxide	<1
1344-28-1	Aluminum Oxide	<1
14808-60-7	Silica, Crystalline (Quartz)	< 0.1
14464-46-1	Silica, Crystalline (Cristobalite)	<0.05

Section 4 - FIRST AID MEASURES

Inhalation: If discomfort, irritation, or respiratory related symptoms develop, remove to fresh air. Get medical attention, if needed.

Skin: If irritation occurs, wash skin with soap and water. Get medical attention if irritation persists.

Eyes: Remove contact lenses. Flush eyes with plenty of water. Do not rub eyes. If irritation persists, get medical attention.

Ingestion: If large amount is swallowed, rinse mouth. Do not induce vomiting. If gastrointestinal discomfort occurs or develops latter, get medical attention.

Most Important Symptoms / Effects, Acute and Delayed: Particulates may cause skin and eye irritation by mechanical abrasion. Inhalation of dust may cause respiratory tract irritation. Symptoms of inhalation exposure may include cough, sore throat, nasal congestion, sneezing, wheezing, and shortness of breath. Prolonged or repeated inhalation of respirable crystalline silica above occupational exposure limits may cause lung diseases, including silicosis and lung cancers.

Indication of Immediate Medical Attention and Special Treatment: Immediate medical attention is unlikely.

Section 5 - FIRE FIGHTING MEASURES

Suitable Extinguishing Media: Non-flammable or combustible. Use extinguishing agents appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

Specific Hazards Arising from the Chemical: None known.

Hazardous Combustion Products: None known

Special Protective Equipment and Precautions for Firefighters: None required. Wear standard full protective firefighting gear including self-contained breathing apparatus (SCBA) for protection against possible exposure.

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Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures: Avoid generating airborne dust during clean-up. Wear personal protective clothing and equipment, see Section 8.

Environmental Precautions: Although this product as sold is not classified as an environmentally hazardous material, large or frequent spills may cause potential problems. No specific precautions. Avoid run off to waterways and sewers.

Methods and Materials for Containment and Cleaning Up: Collect spilled material in appropriate container for disposal. Avoid dry sweeping. Do not use compressed air to clean spilled material. Use HEPA filtered vacuum cleaning system or gently moisten before collecting with shovel and broom. Dispose of collected material in accordance with Federal, State, and local regulations; or recycle and use beneficially in other suitable applications.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling: Avoid generating dust. Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Respirable crystalline silica containing dust and other contaminants may be in the air without a visible dust cloud. Use adequate exhaust ventilation and dust collection to airborne dust concentrations (see Section 8).

Where necessary wear a respirator approved for crystalline silica containing dust and other components (see Section 3) when using, handling, storing or disposing of this product or bag. Maintain, clean, and fit test respirators in accordance with OSHA standard 29 CFR §1910.134.

Wash or vacuum clothing that has become dusty. Wash exposed skin after handling.

In accordance with OSHA's Hazard Communication Standard (29 CFR §1910.1200) familiarize your employees with this SDS and the information contained herein. State and local worker or community "right-to-know" laws and regulations should be strictly followed.

*** Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ***

Exposure Guidelines:

Component	Occupational Exposure Limit (8-hour Time-Weighted Average)		
	OSHA	NIOSH	ACGIH
Silica, Crystalline	0.05 mg/m ³ Respirable Dust	0.05 mg/m ³ Respirable Dust	0.025 mg/m ³ Respirable Dust
Silica, Amorphous	None Established	None Established	None Established
Sodium Oxide	None Established	None Established	None Established
Calcium Oxide	5 mg/m ³	2 mg/m ³	2 mg/m ³
Magnesium Oxide	15 mg/m ³ Total Dust/Fume	None Established	10 mg/m ³ Inhalable
Potassium Oxide	None Established	None Established	None Established
Iron oxide	10 mg/m ³ Fume	5 mg/m ³ Total Dust and Fume	5 mg/m ³ Respirable Dust
Aluminum oxide	15 mg/m ³ Total Dust 5 mg/m ³ Respirable Dust	None Established	None Established

Appropriate Engineering Controls: Use adequate general or local exhaust ventilation to maintain exposure concentrations below applicable exposure limits listed above.

Respiratory Protection: If not possible to reduce airborne exposure levels to applicable exposure limits with ventilation, use the table below to assist in selecting a respirator to reduce exposures below the applicable exposure limit.

Following table is part of NIOSH Respirator Selection Logic, 2004, Chapter III, Table 1, "Particulate Respirators". Full document is at www.cdc.gov/niosh/nppt/topics/respirators; user of this SDS is directed to that site for information concerning respirator selection and use. Assigned protection factor (APF) is the maximum anticipated level of protection provided by each type of respirator worn in accordance with an effective Respiratory Protection Program.

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Assigned Protection Factor	Type of Respirator (Use only NIOSH-certified respirators)
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. ² Appropriate filtering facepiece respirator. ^{2,3} Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. ² Any negative pressure (demand) supplied-air respirator equipped with a half-mask.
25	Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter. Any continuous flow supplied-air respirator equipped with a hood or helmet.
50	Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s). Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter. Any negative pressure (demand) supplied-air respirator equipped with a full facepiece. Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full). Any negative pressure (demand) self-contained respirator equipped with a full facepiece.
1,000	Pressure-demand supplied-air respirator equipped with a half-mask.

1. Protection offered by a respirator is contingent upon (1) respirator user adhering to complete program requirements (such as the ones required by OSHA in 29 CFR §1910.134), (2) use of NIOSH-certified respirators in their approved configuration, and (3) individual fit testing to rule out those respirators that cannot achieve a good fit on individual workers.
2. Appropriate means that the filter medium will provide protection against the particulate in question.
3. An APF of 10 can only be achieved if the respirator is qualitatively or quantitatively fit tested on individual workers.

Skin protection: Maintain good personal hygiene; thoroughly wash hands, face, and other skin contact area. Use gloves if manually handling the product.

Eye Protection: Safety glasses with side shields or goggles recommended if eye contact is anticipated.

*****Section 9 - PHYSICAL AND CHEMICAL PROPERTIES*****

Physical State:	Coarse; solid	Appearance:	Dark granular solid
Odor:	No characteristic odor	Odor Threshold:	Not available
pH:	Not available	Melting Point / freezing point:	Not available
Boiling Point:	Not applicable	Flash Point:	Not applicable
Flammability:	Not applicable	Vapor Pressure:	Not applicable
Upper Explosive Limit (%):	Not applicable	Lower Explosive Limit (%):	Not applicable
Vapor Density (air = 1):	Not applicable	Evaporation Rate:	Not applicable
Specific Gravity (water = 1):	> 1	Water Solubility:	Practically insoluble

*****Section 10 - STABILITY AND REACTIVITY*****

Reactivity: Not reactive under normal conditions of use.

Chemical Stability: Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions: No dangerous reaction known under conditions of normal use.

Conditions to Avoid: Avoid generation of dust.

Incompatible Materials: Strong oxidizing agents; e.g., perchloric acid. Strong acids; e.g., hydrochloric acid.

Hazardous Decomposition Products: Not applicable.

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Section 11 - TOXICOLOGICAL INFORMATION

Respirable Crystalline Silica: Prolonged inhalation of respirable crystalline silica may cause lung disease (silicosis and lung cancer) and other health effects as indicated below.

SILICOSIS: Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years (10 to 20 or more) of prolonged repeated inhalation of 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. Complicated silicosis or PMF symptoms, if present, are shortness of breath and cough. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pulmonale).

Accelerated Silicosis can occur with prolonged repeated inhalation of high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five 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 after the repeated inhalation of very high concentrations of respirable crystalline silica over a short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough, weakness and weight loss. Acute silicosis is fatal.

CANCER:

IARC - The International Agency for Research on Cancer ("IARC") concluded that "crystalline silica in the form of quartz or cristobalite dust is *carcinogenic to humans (Group 1)*". For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100C, "A Review of Human Carcinogens: Arsenic, Metals, Fibres and Dusts" (2011).

NTP – National Toxicology Program (NTP) classifies "Silica, Crystalline (respirable size)" as Known to be a human carcinogen.

AUTOIMMUNE DISEASES:

Several studies have reported excess cases of several autoimmune disorders -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis -- among silica-exposed workers.

TUBERCULOSIS:

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to tuberculosis bacteria. Individuals with chronic silicosis have a three-fold higher risk of contracting tuberculosis than similar individuals without silicosis.

KIDNEY DISEASE:

Several studies have reported excess cases of kidney diseases, including end stage renal disease, among silica-exposed workers. For additional information on the subject, the following may be consulted: "Kidney Disease and Silicosis", Nephron, Volume 85, pp. 14-19 (2000).

NON-MALIGNANT RESPIRATORY DISEASES

The reader is referred to Section 3.5 of the NIOSH Special Hazard Review cited below for information concerning the association between exposure to crystalline silica and chronic bronchitis, emphysema and small airways disease. There are studies that disclose an association between dusts found in various mining occupations and non-malignant respiratory diseases, particularly among smokers. It is unclear whether the observed associations exist only with underlying silicosis, only among smokers, or result from exposure to mineral dusts generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

Sources of information:

The NIOSH Hazard Review - Occupational Effects of Occupational Exposure to Respirable Crystalline Silica published in April 2002 summarizes and discusses the medical and epidemiological literature on the health risks and diseases associated with occupational exposures to respirable crystalline silica. The NIOSH Hazard Review is available through the NIOSH web site, www.cdc.gov/niosh/topics/silica.

OSHA published summary of respirable crystalline silica health effects in Federal Register (9/12/2013): www.federalregister.gov/articles/2013/09/12/2013-20997/occupational-exposure-to-respirable-crystalline-silica.

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Aluminum Oxide

Exposure route: Inhalation, ingestion, eye/skin contact.

Target organs: Respiratory system, gastrointestinal system, eyes, skin.

Acute effect: Inhalation or ingestion of high concentrations of this substance may cause gastrointestinal and/or upper respiratory tract irritation. Eye and skin irritant.

Chronic effect/carcinogenicity: Aluminum oxide is not classifiable as a human carcinogen. On occasion workers chronically exposed to aluminum-containing dusts or fumes have developed severe pulmonary reactions including fibrosis, emphysema and pneumothorax. Long-term exposure may have effects on the central nervous system.

Amorphous Silica

Exposure route: Inhalation.

Target organs: Respiratory system.

Acute effect: Inhalation or ingestion of high concentrations of this substance may cause gastrointestinal and/or upper respiratory tract irritation.

Chronic effect/carcinogenicity: Amorphous silica is not classifiable as a human carcinogen.

Calcium Oxide

Exposure route: Inhalation, ingestion.

Target organs: Respiratory system, gastrointestinal system, eyes, skin

Acute effect: Substance is corrosive to the eyes, the skin and the respiratory tract. The effects may be delayed.

Chronic effect/carcinogenicity: Calcium oxide is not classifiable as a human carcinogen. Repeated or prolonged contact with skin may cause dermatitis. Lungs may be affected by repeated or prolonged exposure to dust particles. The substance may cause ulceration and perforation of the nasal septum.

Iron Oxide

Exposure route: Inhalation, ingestion, skin.

Target organs: Respiratory system, skin, eyes, neurological system.

Acute effect: Major findings: stupor, shock, acidosis, hematemesis, bloody diarrhea or coma. Minor findings: vomiting, diarrhea, mild lethargy. Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis. Experimental work in animals exposed by intratracheal injection or by inhalation to iron oxide mixed with less than 5% silica has shown no evidence of fibrosis produced in lung tissue.

Chronic effect/carcinogenicity: Irritability, nausea or vomiting, and normocytic anemia. When exposed to levels greater than 50 to 100 milligram per day, it can result in pathological deposition of iron in body tissues causing fibrosis of the pancreas, diabetes mellitus, and liver cirrhosis. Workers exposed to iron oxide fume and silica may develop "mixed dust pneumoconiosis." Not classifiable as human carcinogen.

Magnesium Oxide

Exposure route: inhalation.

Target organs: respiratory system.

Acute effect: Substance irritates the eyes and the nose. Inhalation of fume may cause metal fever.

Chronic effect/carcinogenicity: Substance not classifiable as human carcinogen.

Section 12 - ECOLOGICAL INFORMATION

Ecotoxicity: Product is not classified as environmentally hazardous.

Persistence and Degradability: No data available for this product.

Bioaccumulative Potential: Product is not bioaccumulating.

Mobility in Soil: No data available for this product.

Other Adverse Effects: No data available for this product.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods: Collect and reuse clean materials. Discard any product, residue, disposable container or liner in full compliance with Federal, state, and local regulations.

The above applies to U.S. Minerals product only as sold. The product may be contaminated during use and it is the responsibility of the user to assess the appropriate disposal method in that situation.

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Section 14 - TRANSPORT INFORMATION

DOT: Not regulated as a hazardous material.

IATA: Not regulated as a hazardous material.

IMDG: Not regulated as a hazardous material.

TDG: Not regulated as a hazardous material.

Product Label: Label as required by the OSHA Hazard Communication Standard [29 CFR §1910.1200 (f)].

Section 15 - REGULATORY INFORMATION

United States (Federal) and State

TSCA (Toxic Substances Control Act): Components of the product appear on the EPA TSCA chemical substance inventory: Aluminum oxide, calcium oxide, iron oxide, magnesium oxide, potassium oxide, silica (crystalline), sodium oxide,

RCRA (Resource Conservation and Recovery Act): This product is not classified as a hazardous waste under the EPA RCRA, or its regulations, 40 CFR §261 et seq.

CERCLA (Comprehensive Environmental Response Compensation and Liability Act): This product is not classified as a hazardous substance under regulations of the CERCLA, 40 CFR §302.

EPCRA (Emergency Planning and Community Right to Know Act) SARA Title III: This product does not contain chemicals subject to SARA 302 or SARA 313 reporting: None above the de minimis concentrations.

CAA (Clean Air Act): The product mined and processed by U.S. Minerals is not processed with or does not contain any Class I or Class II ozone depleting substances.

California:

California Proposition 65: Crystalline silica (airborne particles of respirable size) are classified as a substance known to the State of California to be a carcinogen.

California Inhalation Reference Exposure Level (REL): California established a chronic non-cancer effect REL of 3 µg/m³ for silica (crystalline, respirable). A chronic REL is an airborne level of a substance at or below which no non-cancer health effects are anticipated in individuals indefinitely exposed to the substance at that level.

CANADA

Domestic Substances List: Listed on inventory.

WHMIS Classification D2A Class D Division 2 Subdivision A – Very Toxic (Carcinogenicity).

Section 16 - OTHER INFORMATION

U.S. Minerals, Inc. Disclaimer

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR §1910.1200 requires that this SDS be made available to your employees who handle or may be exposed to this product. Educate and train your employees regarding applicable precautions. Instruct your employees to handle this product properly.

Disclaimer: The information contained in this document applies to this specific material as supplied and U.S. Minerals believes that the information contained in this SDS is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, U.S. Minerals, assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, product must not be used in a manner which could result in harm.

End of SDS