

SDS NO:

DFC106

DATE PREPARED: 05/19/15

CURRENT DATE: 05/19/15

SECTION 1: Identification

Product Identifier:

Name of Product: Crucibles, Nozzles, Liners, Trays
Other Means of Identification: Aluminosilicate Product
Recommended Use: To Contain Molten Metal and Glass

Manufacturer/Supplier: DFC Ceramics, LLC
515 South 9th Street
Canon City, CO 81212
Telephone General: (719) 275-7525

Emergency Telephone: (800) 424-9300 – CHEMTREC

SECTION 2: Hazard(s) Identification

EMERGENCY OVERVIEW

WARNING!

These products are classified as articles by OSHA Standard 1910.1200, however, respirable dust from these products may aggravate existing chronic lung conditions such as bronchitis, emphysema and asthma.

United States (US)

According to OSHA 29 CFR 1910.1200 HCS

Classification:

OSHA HCS 2012

Carcinogenicity: Category 1A

Specific Target Organ Toxicity (Repeated Exposure): Category 2

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Label Elements:

GHS-US LABELING



HAZARD PICTOGRAMS (GHS-US)

Signal Word (GHS-US):

Danger; Warning

Hazard Statements (GHS-US):

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

H335: May cause respiratory irritation

H373: May cause damage to lungs through prolonged or repeated exposure through inhalation.

Precautionary Statements (GHS-US):

P201: Obtain special instructions before use

P260: Do not breathe dust

P264: Wash exposed skin thoroughly after handling

P270: Do not eat, drink, or smoke when using this product.

P280: Wear protective gloves, clothing, goggles, and respirator if cleaning up dust or creating dust from product during use.

P314: Get medical advice/attention if you feel unwell

P501: Dispose of contents/container in accordance with local, regional, national, and international regulation listed in section 13 of this document.

Storage/Disposal (GHS-US): Store in original factory container in a dry area. Keep container closed when not in use. Avoid creating airborne dust. Follow routine housekeeping procedures. Vacuum only with HEPA filtered equipment. If sweeping is necessary, use a dust suppressant and place material in closed containers.

Do not use compressed air for clean-up.

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Other Hazards:

Not available

Unknown Acute Toxicity (GHS-US):

Not available

SECTION 3: Composition/Information on Ingredients

Substances:

NAME	PRODUCT IDENTIFIER (CAS #)	% BY WEIGHT	OSHA PEL	ACGIH TLV
Silica, fused (Amorphous)	60676-86-0	70-95	(80mg/m ³ ÷ % SiO ₂) Or 20 mppcf	0.1 mg/m ³ (respirable dust)
Alumina	1344-28-1	5-20	15 mg/m ³ (total dust); 5mg/m ³ (respirable dust)	10mg/m ³
Silica, amorphous	7631-86-9	Up to 3.0	(80 mg/m ³ ÷ % SiO ₂) Or 20 mppcf	10 mg/m ³
Calcium Oxide	1305-78-8	Up to 2.0	5 mg/m ³	2 mg/m ³
Titanium Dioxide	13463-67-7	Up to 1.5	15mg/m ³	10 mg/m ³
Ferric Oxide	1309-37-1	0.1 – 3.0	10 mg/m ³	5 mg/m ³
Crystalline silica	14808-60-7 or 14464-46-1	Up to .5	See notes ⁽¹⁾	0.05 mg/m ³ (respirable dust)

Notes: Depending on the percentage and the type(s) of silica in the mineral, the OSHA Permissible Exposure Limit (PEL) for respirable dust containing crystalline silica (8HR TWA) is based on the formula listed in 29 CFR 1910.1000, "Air Contaminants" under Table Z-3, "Mineral Dust:. For quartz containing mineral dust, the PEL= 10 mg/m³ / (*% of silica + 2 (% of cristobalite) = + 2 (% of tridymite) + 2).

(See Section 8 " Exposure Controls / Personal Protection: for exposure guidelines.)

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SECTION 4: First-aid Measures

Description of First Aid Measures

Inhalation:	Remove affected person to dust free location. See Section 8 to reduce or eliminate exposure.
Eye Irritation:	Flush with large amounts of water for at least 15 minutes. Do not rub eyes.
Skin Irritation:	Wash affected area gently with soap and water. Skin cream or lotion after washing may be helpful.
Ingestion:	Unlikely route of exposure. Seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms/Injuries:	All symptoms should be temporary and should subside with treatment.
Symptoms/Injuries after inhalation:	Chronic respiratory conditions may be aggravated. Prolonged/repeated inhalation of respirable crystalline silica may cause delayed lung injury (ex. Silicosis, lung cancer).
Symptoms/Injuries after eye contact:	Symptoms should be temporary, should subside with treatment, and may include redness, itching, or irritation.
Symptoms/Injuries after ingestion:	Not a likely route of exposure; no conclusive data is available at this time.

-If symptoms persist, seek medical attention.

Indication of any immediate medical attention and special treatment needed

-If symptoms persist, seek medical attention.

***If medical advice is needed, have product container or label at hand.**

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SECTION 5: Fire-fighting Measures

Extinguishing Media

Suitable extinguishing media: Use extinguishing media suitable for type of surrounding fire.

Special Hazards Arising From the Substance or Mixture

Fire hazard: None

Explosion hazard: None

Reactivity: None

Advice for Firefighters

Firefighting instructions: Product is not flammable, and fires should be treated respective of what caused them and what is in the surrounding area.

SECTION 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Spill/Leak Procedures: Avoid creating airborne dust. Follow routine housekeeping procedures. Vacuum only with HEPA filtered equipment. If sweeping is necessary, use a dust suppressant and place material in closed containers. **Do not use compressed air for clean-up.**

For Non-Emergency Personnel

Protective equipment: Gloves, goggles, and respirator

Emergency procedures: Not applicable

For Emergency Responders

Protective equipment: Gloves, goggles, and respirator

Emergency procedures: Not applicable

Methods and Material for Containment and Cleaning Up

For containment: See **Spill/ Leak Procedures** above

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Methods for cleaning up: See **Spill/ Leak Procedures** above

Reference to Other Sections

See heading 8, **Exposure controls and Personal Protection**

SECTION 7: Handling and Storage

Precautions for Safe Handling

Additional hazards when processed:

Precautions for safe handling:

Limit the use of power tool unless in conjunction with local exhaust system. Use hand tool whenever possible. Frequently clean the work area with HEPA filtered vacuum or wet seeping to minimize the accumulation of debris. **Do not use compressed air for clean-up.**

Hygiene measures:

Wash exposed skin with mild soap and water after exposure.

Conditions for Safe Storage, Including Any Incompatibilities

Storage conditions:

Store in original factory container in a dry area. Keep container closed when not in use.

Incompatible products:

Powerful oxidizers; fluorine, manganese trioxide, oxygen disulfide

Storage area:

Store in dry area in original container. Keep container closed when not in use.

Special rules on packaging:

Do not reuse product packaging as it may contain residue.

Specific End Use(s):

To contain molten metal or glass

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SECTION 8: Exposure Controls/Personal Protection

Dust samples from these products have not been tested for their specific toxicity, but may contain more than 0.1% crystalline silica, for which, the following applies:

Control Parameters

NAME	PRODUCT IDENTIFIER (CAS #)	OSHA PEL	ACGIH TLV
Silica, fused (Amorphous)	60676-86-0	(80mg/m ³ ÷% SiO ₂) Or 20 mppcf	0.1 mg/m ³ (respirable dust)
Alumina	1344-28-1	15 mg/m ³ (total dust); 5mg/m ³ (respirable dust)	10mg/m ³
Silica, amorphous	7631-86-9	(80 mg/m ³ ÷% SiO ₂) Or 20 mppcf	10 mg/m ³
Calcium Oxide	1305-78-8	5 mg/m ³	2 mg/m ³
Titanium Dioxide	13463-67-7	15mg/m ³	10 mg/m ³
Ferric Oxide	1309-37-1	10 mg/m ³	5 mg/m ³
Crystalline silica	14808-60-7 or 14464-46-1	See notes ⁽¹⁾	0.05 mg/m ³ (respirable dust)

Depending on the percentage and the type(s) of silica in the mineral, the OSHA Permissible Exposure Limit (PEL) for respirable dust containing crystalline silica (8HR TWA) is based on the formula listed in 29 CFR 1910.1000, "Air Contaminants" under Table Z-3, "Mineral Dust:. For quartz containing mineral dust, the PEL= 10 mg/m³ / (% of silica + 2 (% of cristobalite) = + 2 (% of tridymite) + 2).

Exposure Controls

Appropriate engineering controls: Use in the furnace/oven with exhaust system or in a well ventilated area. Over exposure to any of the chemicals listed on Section 3 is not anticipated. Consult an industrial hygienist for exposure assessment due to abnormal use of this product. If respirators are selected, use NIOSH/MSHA approved respirators, in compliance with OSHA Respiratory Protection Standard 29 CFR 1910.134 and 29 CFR 1926.103, for the particular hazard or airborne concentrations to be encountered in the work environment.

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Personal protective equipment:

Hand protection:

Gloves may be worn, if desired.

Eye protection:

Goggles/safety glasses with side shields should be worn.

Skin and body protection:

Special equipment not required.

Respiratory protection:

If respirators are selected, use NIOSH/MSHA approved respirators, in compliance with OSHA Respiratory Protection Standard 29 CFR 1910.134 and 29 CFR 1926.103, for the particular hazard or airborne concentrations to be encountered in the work environment.

Thermal hazard protection:

Not applicable

SECTION 9: Physical and Chemical Properties

Information on Basic Physical and Chemical Properties

Physical state	: Chemical family: Aluminosilicates
Appearance	: Pressed shape
Color	: Varies
Odor	: None
Odor Threshold	: Not applicable
pH	: Not applicable
Relative evaporation rate	: Not applicable
Melting point	: 2750°
Freezing point	: Not applicable
Boiling point	: Not applicable
Flash point	: None
Auto-ignition temperature	: Not applicable
Decomposition temperature	: Not applicable
Flammability (solid, gas)	: Not applicable
Vapor pressure	: Not applicable
Relative density at 20 * C	: Not applicable
Relative density	: Varies
Density	: Varies
Solubility	: Not soluble in water

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Log Pow	: Not applicable
Log Kow	: Not applicable
Viscosity, kinematic	: Not applicable
Viscosity, dynamic	: Not applicable
Explosive properties	: None
Oxidizing properties	: Not applicable
Explosive limits	: Not applicable

Other Information

SECTION 10: Stability and Reactivity

Reactivity:	Hazardous reactions will not occur under normal conditions.
Hazardous polymerization:	Hazardous polymerization will not occur.
Chemical Stability:	Stable under normal conditions.
Possibility of Hazardous Reactions:	Not likely under normal usage conditions.
Condition to Avoid:	
Chemical incompatibilities:	Powerful oxidizers; fluorine, trioxide, oxygen disulfide
Incompatible Materials:	Powerful oxidizers; fluorine, trioxide, oxygen disulfide
Hazardous Decomposition Products:	Not available

SECTION 11: Toxicological Information

Information on Toxicological Effects

Dust samples from these products have not been tested. They may contain respirable crystalline silica.

Acute toxicity:	Not classified
Skin corrosion/irritation:	Not Applicable

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Serious eye damage/irritation: Not Applicable
Respiratory or skin sensitization: Not Applicable
Germ cell mutagenicity: Not Applicable
Carcinogenicity: Category 1A

Crystalline Silica: Some samples of crystalline silica administered to rats by inhalation and intratracheal instillation have caused fibrosis and lung cancer. Mice and hamsters, similarly exposed, develop inflammatory disease including fibrosis but no lung cancer.

Silica, amorphous: Toxic effects described in animals from single inhalation exposures of amorphous silica include upper respiratory irritation, lung congestion, bronchitis, and emphysema. Repeated inhalation exposures at concentrations of 50 or 150 mg/m³ produced increased lung weights and lung changes. No progressive pulmonary fibrosis was seen and the observed lung changes were reversible. No adverse effects were observed in this study at 10 mg/m³. **No animal test reports are available to define the carcinogenic, mutagenic, or reproductive effects.**

Reproductive toxicity: Not available
Specific target organ toxicity (single exposure): Not available
Specific target organ (repeated exposure): Not available

Aspiration hazard: Not available

Symptoms/injuries after inhalation: Chronic respiratory conditions may be aggravated. Prolonged/repeated inhalation of respirable crystalline silica may cause delayed lung injury (ex. Silicosis, lung cancer).

Symptoms/injuries after eye contact: Symptoms should be temporary, should subside with treatment, and may include redness, itching, or irritation.

Symptoms/injuries after ingestion: Not a likely route of exposure; no conclusive data is available at this time.

SECTION 12: Ecological Information (Non-Mandatory)

Adverse effects of this material on the environment are not anticipated.

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SECTION 13: Disposal Considerations (Non-Mandatory)

Waste Management

To prevent waste materials becoming airborne during waste storage, transportation and disposal, a covered container or plastic bagging is recommended. Comply with federal, state and local regulations.

Disposal

If discarded in its purchased form, this product would not be a hazardous waste under Federal regulations (40 CFR 261). Any processing, use, alteration, or chemical additions to the product, as purchased, may alter the disposal requirements. Under Federal regulations, it is the waste generator's responsibility to properly characterize a waste material, to determine if it is a hazardous waste. Check local, regional, state, or provincial regulations to identify all applicable disposal requirements.

SECTION 14: Transport Information (Non-Mandatory)

U.S. Department of Transportation (DOT)

Hazard Class:	Not Regulated
Labels:	Not Applicable
Placards:	Not Applicable
United Nations (UN) Number:	Not Applicable
North America (NA) Number:	Not Applicable
Bill of Lading:	Product Name

International

Canadian TDG Hazard Class & PIN: Not regulated
Not classified as dangerous goods under ADR (road), RID (train), or IMDG (ship).

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SECTION 15: Regulatory Information (Non-Mandatory)

SARA Title III: This product does not contain any substances reportable under Sections 302, 304, 313 (40 CFR 372).

Sections 311 and 312 apply.

OSHA: Comply with Hazard Communication Standards 29 CFR 1910.134 and 29 CFR 1926.59 and Respiratory Protection Standard 29 CFR 1910.134 and 29 CFR 1926.103.

TSCA: All substances contained in this product are listed in the TSCA Chemical Inventory

California: "Silica, crystalline (airborne particles of respirable size)" is listed in Proposition 65, The Safe Drinking Water and Toxic Enforcement Act of 1986 as a chemical known to the State of California to cause cancer.

Other States: Crystalline silica products are not known to be regulated by states other than California, however, state and local OSHA and EPA regulations may apply to these products. Contact your local agency if in doubt.

International Regulations:

Canadian WHMIS: Class D-2A Materials Causing Other Toxic Effects

Canadian EPA: All substances in this product are listed, as required, on the Domestic Substance List (DSL).

SECTION 16: Other Information,

Indication of changes : 05/19/2015

Other information: The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as guidance for safe handling, use, processing, storage, transportation, disposal, and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.