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Revision  
1.2

Date  
5/4/2006

### Material Safety Data Sheet

Product F 413

Ceramics, Inc.

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Emergency Health	(330) 627-2191
Emergency CHEMTREC	(800) 424-9300
Product Identification	F 413
Chemical Family	Frits, Chemicals
CAS Number	65997-18-4
Prepared By	Nath Viswanath

HMIS	
Health	1
Flammability	0
Reactivity	0
Personal Protection	E

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**1. HAZARDOUS COMPONENTS**

Frit is a fused silicate glass substance. The components of this glass product listed below are from the inventory of potentially hazardous substances referenced by FED-OSHA in 29 CFR 1910.1200.

Component	ACGIH/TLV	Exposure Limit (Air) mg/m <sup>3</sup>	
		FED-OSHA/PEL	CAL-OSHA/PEL
Particulates not otherwise classified ( $\Sigma$ Dust)	10 / 3 (respirable)	15	10

\*(A) Only present as part of frit CAS # 65997-18-4

**2. HEALTH HAZARD DATA****Primary Routes of Exposure**

Exposure to dust may be irritating to eyes, nose and throat. At very high exposure levels the dust may have an effect on the lungs. Inhalation, Eye Contact, Skin Contact, and Ingestion are the typical method of exposure.

**Inhalation**

Dusts may cause irritation of the nose, throat, and respiratory tract.

**Eye Contact**

Direct contact with this material may irritate eye tissue. Symptoms can include irritation, redness, and tearing.

**Skin Contact**

Prolonged contact to this product can lead to drying of the skin which can cause irritation.

**Ingestion**

Ingestion of this material can cause irritation of the throat, stomach, and gastrointestinal tract.

**Source of Health Hazard Data**

This MSDS was developed from information on the constituent substances of this frit material, not from test data on the frit itself.

**3. EMERGENCY AND FIRST AID PROCEDURES**

If overexposure is suspected move the person to fresh air. If breathing is difficult give oxygen. Call a physician. For dust in eyes: flush immediately with clean water and call a physician.

Skin irritation: wash affected areas thoroughly with soap and water. If irritation persists, seek medical attention.

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**4. PRECAUTIONS FOR SAFE HANDLING AND USE****Handling Procedures**

Avoid inhalation of dusts. Avoid contact with skin and eyes. Prevent the buildup of dusts. Wash thoroughly after handling. Keep container closed and dry.

**Storage Procedures**

Store in a closed container in a cool, dry area.

**Other**

Containers may be considered as hazardous when empty. Follow all MSDS and label warnings even when container is emptied. Dispose of container according to all applicable State, Federal, and local laws.

**5. CONTROL MEASURES****Respiratory Protection**

A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever work place conditions warrant a respirators use.

**Eye Protection**

Use chemical resistant splash goggles at all times. Wear safety glasses with side shields.

**Hand protection**

Chemical resistant gloves should be used whenever this material is handled. Rinse and wash hands after removing gloves.

Full body clothing and appropriate footwear should be worn all times.

**Engineering Controls (Ventilation)**

Engineering and / or administrative controls should be implemented to reduce exposure levels. Refer to the current specification requirements OSHA 29 CFR CFR 1910.94 or the current edition of Industrial Ventilation.

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**6. FIRE & EXPLOSION HAZARD DATA**

Flash Point :	N/A
Flammable Limits:	N/A
Extinguishing Media	None
Unusual Fire & Explosion Hazards	None

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**7. PHYSICAL DATA**

Specific Gravity 1.5-3.0 (  $H_2O=1$  )  
 Solubility in Water Negligible  
 Appearance Fine Powder or Granular  
 Odor Odorless

**8. REACTIVITY DATA**

Stability Stable  
 Hazardous Polymerization Will not occur  
 Hazardous Decomposition Avoid fumes from firing.

**9. TRANSPORTATION INFORMATION**

DOT - Domestic surface Hazard class Not Regulated  
 IMO / IMDG Code - Ocean Hazard class Not Regulated  
 ICAO / IATA - AIR Hazard class Not Regulated

This product is not regulated as a hazardous material by the US (DOT) or Canadian (TDG) transportation regulations.

**10. SARA Title 3 - Section 313**

This product contains the following chemical(s) that require reporting under Section 313 of the Emergency Planning and Community Right-to-Know Act, also known as Title 3 of SARA and 40 CFR part 372.

COMPONENT (\*A) % PRESENT

(\*A) The percent reported is based on the theoretical composition and only present as part of frit CAS # 65997-18-4

**11. DISCLAIMER**

The information contained herein relates only to the specific material identified. Reasonable care has been taken in the preparation of this information, but Fusion Ceramics, Inc. extends no warranties, makes no representations and assumes no responsibility as to the accuracy or suitability of this information. Fusion Ceramics, Inc. urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application.

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### **Abbreviations Used on Material Safety Data Sheets**

ACGIH	American Conference of Government Industrial Hygienists
CAL-OSHA	California Occupational Safety and Health Administration
CAS Number	Chemical Abstract Service Number
CFR	Code of Federal Regulations
FED-OSHA	Federal Occupational Safety and Health Administration
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
PEL	Permissible Exposure Limit
TSCA	Toxic Substances Control Act
TLV	Threshold Limit Value
DOT	Department of Transportation
IMO	International Maritime Organization
IMDG Code	International Maritime Dangerous Goods Code
ICAO	International Civil Aviation Organization
IATA	International Air Transport Association
SARA	Superfund Amendments and Reauthorization Act