



MATERIAL SAFETY DATA SHEET

1. Product Name:

GF-136 FRIT = 3819

Revision # 0

Date: 17-Oct-2003

Company: Glass Coatings & Concepts
300 Lawton Ave.
Monroe, OH 45050

Telephone: 513-539-5300

Emergency information: Telephone: Domestic Shipments: CHEMTREC 800-424-9300
International Shipments: CHEMTREC (703) 527-3887

2. Composition/Information on Ingredients

<u>Ingredients:</u>	<u>CAS No:</u>	<u>EINECS</u>	<u>% Weight (Typical)</u>
Frits, chemicals	65997-18-4*		100
Sodium-Boro-Silicate Glass Frit - Pb, Cd free	65997-18-4*_		100

Synonyms: GF-136 - GF-136 FRIT

<u>As Regulated (Related Exposure Limits)</u>	<u>OSHA PEL (mg/m³)</u>	<u>ACGIH TLV (mg/m³)</u>	<u>%Metal (Typical)</u>	<u>Sara 313</u>
Fluorides (as F)	2.5	2.5	<10	No
Silica -Quartz	10 /%SiO2 +2 (Respirable) 0r 30/% SiO2+2 (Total dust)	0.05 Respirable	<20	No
Zinc compounds (as Zn)	None	5	<5	Yes

3. Hazards Identification

EEC Risk Phrases: Not applicable
EEC Safety Phrases: Not applicable
Methods for Cleanup: See Section XI for Toxicological Information.

4. First Aid Measures

If inhaled: If inhaled, remove to fresh air. If not breathing, give artificial respiration, preferably

	mouth-to-mouth. If breathing is difficult, give oxygen. Call a physician.
On ingestion:	If swallowed, induce vomiting immediately by giving two glasses of water and sticking finger down throat. Never give anything by mouth to an unconscious person. Call a physician.
On contact with eyes:	On contact with eyes flush eyes with plenty of water for at least fifteen (15) minutes. Call a physician.
On skin contact:	On skin contact, wash thoroughly with soap and water.

5. Fire Fighting Measures

Suitable extinguishing media:	This product will not burn. Use suitable extinguishing media for fighting surrounding fire.
Unsuitable extinguishing media:	Not applicable
Emitted when burned:	Not applicable
Special protective equipment:	This product will not burn. Use appropriate techniques for fighting surrounding fire.
Further information:	None

6. Accidental Release Measures

Personal precautions:	Maintain appropriate dust control.
Environmental precautions:	Prevent contamination of soils, drains and surface water.
Methods for cleanup:	Transfer material into closed container for re-use or disposal.

7. Handling and Storage

Handling:	Good housekeeping procedures should be followed to prevent dust during processing. Do not eat, drink or smoke in work areas. Wash thoroughly with soap and water after handling. Provide eye wash stations in areas of handling.
Storage:	Store material in a closed container. Normal warehousing.

8. Exposure Controls and Personal Protection

Engineering controls/measures:	Use mechanical ventilation to keep dust below regulatory standards (see Section II). Design criteria usually cannot be specified in an MSDS because of its complexity.
Personal Protective Equipment:	
Respiratory protection:	MSHA/NIOSH respirators approved for dusts TC-21C or NIOSH approved cartridges for Non-oil aerosols, N95, N99, N100 (42 CFR 84).
Hand protection:	Rubber, PVC coated gloves, impermeable.
Eye protection:	Safety Glasses with side shields, mono goggles.
Body protection:	No special precautions (see hand protection).
General safety and hygiene measures:	Good housekeeping procedures should be followed to prevent dust during processing.

9. Physical and Chemical Properties

Appearance:	White Powder
Odor:	No Odor
Melting point/melting range:	Not Determined
Boiling point/boiling range:	Not applicable
Flash point:	Not applicable
Combustibility:	Not applicable
Explosion limits:	
Lower Vol. %:	Not applicable
Upper Vol. %:	Not applicable
Ignition temperature:	Not applicable
Self-ignition:	Not applicable
Self-ignition temperature:	Not applicable
Explosion hazard:	Not applicable
Fire promoting properties:	Not applicable
Vapor pressure:	Not applicable
Specific gravity:	<1
Bulk density:	No data available
Packing density:	No data available
Solubility in Water:	<2
Solubility in other solvents:	Negligible
pH value:	No data available
Octanol/water partition coefficient (log POW):	Not applicable
Viscosity:	Not applicable
Other information:	Not applicable

10. Stability and Reactivity

Conditions to avoid:	None known
Materials to avoid:	None known
Hazardous reactions:	None known
Hazardous decomposition products:	None known

11. Toxicological Information

Acute Toxicity

LD50/oral/rat:	Not Tested
LD50/inhal/rat:	Not Tested
Sensitizing:	None expected
Primary skin irritation/rabbit:	No data available
Primary mucous membrane irritation/rabbit' eyes:	No data available

ADDITIONAL INFORMATION:

Glass Frit-
Repeated overexposure to this compound may cause eye, skin and respiratory tract irritation. Some compounds of the metals used in the manufacturing of this Frit, Zinc, have demonstrated various toxic properties (1,2,3,4). However,

there is no evidence that this frit has these toxic characteristics.

Long term overexposure to silica causes pneumoconiosis and silicosis, a form of pulmonary fibrosis. Continued exposure to silica can lead to cardiopulmonary impairment. Symptoms are usually delayed (10 years or more), but may appear in as little as 8-18 months after initial exposure.

Routes of Entry:

Eyes: No Skin: No Inhalation: Yes Ingestion: Yes

CARCINOGENICITY: NTP: Yes IARC Monographs: Yes
OSHA Regulated: No

Crystalline silica has been reviewed by IARC. IARC found limited evidence for carcinogenicity of crystalline silica in humans and sufficient evidence in experimental animals. Crystalline silica inhaled in the form of quartz or cristobolite from occupational sources is carcinogenic to humans (IARC Monograph, Volume 68). Silica, crystalline is known to be a human carcinogen (NTP 10th Edition) Warning: This product contains a chemical known to the State of California to cause cancer.

Signs and Symptoms of Exposure: Irritation of the eyes, skin and respiratory tract.

Medical Conditions Generally Aggravated by Exposure: Respiratory and skin disorders aggravated by dust.

12. Ecological Information

Mobility:	No data available
Degradability:	No data available
Accumulation:	No data available
Short and long term effects on:	
Ecotoxicity:	No data available
Other adverse effects:	No data available

13. Disposal Considerations

Substance:	Dispose of at an approved landfill in accordance with local, state, federal and national regulations.
Contaminated packaging:	Dispose of at an approved landfill in accordance with local, state, federal and national regulations.

14. Transportation information

INTERNATIONAL

Land transport:	ADR/RID/GGVS/GGVE:	Not Regulated
Sea transport:	IMDG/GGVSee UN-No.:	Not Regulated
Air transport:	ICAO/IATA UN/ID-No.:	Not Regulated

<u>U.S.</u>	D.O.T. Classification:	Not Regulated
<u>CANADA</u>	Transport of dangerous goods:	Not Regulated

15. Regulatory Information

Labeling according to EEC Directives: Not Regulated

SARA

SARA 312:

Health:	Immediate (Acute):	No*	Fire:	None
	Delayed (Chronic):	Yes**	Reactivity:	None
			Sudden release of pressure:	None

*Not an acute hazard, however may cause irritation due to abrasiveness.

** See Section 11

SARA 313:

THIS PRODUCT CONTAINS A CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

<5% Zinc Compound

Inventories

The ingredients of this product have been listed in the following inventories:

U.S.A. TSCA:	Listed
--------------	--------

HMIS Code: 1*00

16. Other Information

References:

1. Occupational Health Guidelines for Chemical Hazards, Vol. I., OSHA, Sept., 1978.
2. Occupational Diseases "A Guide to Their Recognition", U.S. DHEW (NIOSH), June 1977.
3. Documentation of the Threshold Limit Values, 6th Edition, ACGIH, 1991.
4. Pocket Guide to Chemical Hazards, NIOSH/OSHA, June, 1990.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, The Shepherd Color Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purpose prior to use. In no event will The Shepherd Color Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.

15. Regulatory Information

Labeling according to EEC Directives: Not Regulated

SARA

SARA 312:

Health:	Immediate (Acute):	No*	Fire:	None
	Delayed (Chronic):	Yes**	Reactivity:	None
			Sudden release of pressure:	None

*Not an acute hazard, however may cause irritation due to abrasiveness.

** See Section 11

SARA 313:

THIS PRODUCT CONTAINS A CHEMICAL OR CHEMICALS SUBJECT TO THE REPORTING REQUIREMENTS OF SECTION 313 OF TITLE III OF THE SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT OF 1986 AND 40 CFR PART 372. THIS INFORMATION MUST BE INCLUDED IN ALL MSDS THAT ARE COPIED AND DISTRIBUTED FOR THIS MATERIAL.

<5% Zinc Compound

Inventories

The ingredients of this product have been listed in the following inventories:

U.S.A. TSCA:	Listed
--------------	--------

HMIS Code: 1*00

16. Other Information

References:

1. Occupational Health Guidelines for Chemical Hazards, Vol. I., OSHA, Sept., 1978.
2. Occupational Diseases "A Guide to Their Recognition", U.S. DHEW (NIOSH), June 1977.
3. Documentation of the Threshold Limit Values, 6th Edition, ACGIH, 1991.
4. Pocket Guide to Chemical Hazards, NIOSH/OSHA, June, 1990.

Although the information and recommendations set forth herein (hereinafter "Information") are presented in good faith and believed to be correct as of the date hereof, The Shepherd Color Company makes no representations as to the completeness or accuracy thereof. Information is supplied upon the condition that the persons receiving same will make their own determination as to its suitability for their purpose prior to use. In no event will The Shepherd Color Company be responsible for damages of any nature whatsoever resulting from the use of or reliance upon Information. NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OF ANY OTHER NATURE ARE MADE HEREUNDER WITH RESPECT TO INFORMATION OR THE PRODUCT TO WHICH INFORMATION REFERS.