

PRODUCT: Powder
 REVISION NUMBER: 1

REVISION DATE: 03/16/2004
 Date Printed: 03/16/2004

1. PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURED BY: Ferro Corporation
 251 West Wylie Avenue
 P.O. Box 519
 Washington, PA 15301
 Prod Info 724-223-5900
 CHEMTREC 800-424-9300

Use the CHEMTREC telephone number only in the event of chemical emergencies.

PREPARED BY: Jeff Miller
 Environmental Engineer

PRODUCT CODE: 3289

PRODUCT TRADE NAME: 3289 FRIT

CAS NO: 65997-18-4*

CHEMICAL FAMILY: Decorative Borosilicate Coating

PRODUCT TYPE: Glass Enamel/Flux

2. COMPOSITION/INFORMATION ON INGREDIENTS

This product does not have exposure limit values. Exposure limit values for some of the components are listed below as a guideline for safe use of this product.

HAZARDOUS COMPONENTS

INGREDIENTS/CAS #	OSHA PEL:	ACGIH TLV:
Crystalline Silica 14808-60-7	TWA (Total Dust): 30 mg/m ³ / (%Quartz + 2) TWA (Resp. Frt): 250 mppcf / (%Quartz + 5) STEL (Resp. Frt): 10 mg/m ³ / (%Quartz + 2)	TWA: Respirable Fraction: 0.05 mg/m ³
Borates NONE	NE	TWA 1.0 mg/m ³
Alumina 1344-28-1	TWA total dust: 15 mg/m ³ ; TWA respirable fraction: 5 mg/m ³	TWA as Al: 10 mg/m ³
Barium Compound NONE	TWA Total dust: 10.0 mg/m ³ ; TWA Respirable fraction: 5.0 mg/m ³	TWA Total dust: 10.0 mg/m ³

3. HAZARDS IDENTIFICATION

PRINCIPLE ROUTES OF EXPOSURE: Inhalation, ingestion and dermal.

The key immediate hazards are:
 Skin, eye, and respiratory irritant.

Effects from Acute Exposure:

EYE CONTACT : Causes eye irritation.
SKIN CONTACT: Causes skin irritation.
INHALATION: Causes lung irritation.
INGESTION: May be harmful if swallowed.

AGGRAVATED MEDICAL CONDITIONS:

Respiratory

Effects from Chronic Exposure:

CARCINOGENIC INGREDIENTS:

None

OVEREXPOSURE EFFECTS:

CONTAINS BOROSILICATE FRIT:

Overexposure to borosilicate frit may cause skin, eye, and respiratory irritation due to the physical nature of the particulates. Repeated and prolonged breathing of these particulates might cause coughing, wheezing, impaired lung function, and increased sputum production. Smoking aggravates these effects.

4. FIRST AID MEASURES

INGESTION: If swallowed, give at least 3-4 glasses of water, but do not induce vomiting. Do not give anything by mouth to an unconscious or convulsing person. Get immediate medical attention.

SKIN: For skin contact, wash affected areas with plenty of water, and soap if available, for several minutes. Get medical attention if irritation occurs.

INHALATION: If inhaled, remove from area to fresh air. Get medical attention if respiratory irritation develops or if breathing becomes difficult.

EYES: For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. Get immediate medical attention if irritation develops.

NOTES TO PHYSICIAN: None specified.

5. FIRE FIGHTING MEASURES

FLASH POINT (°F): Not Applicable

Lower Explosive Limit: Not Applicable

Upper Explosive Limit: Not Applicable

EXTINGUISHING MEDIA: Water

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FIRE FIGHTING PROCEDURES: Fire-Fighters should wear self-contained breathing apparatus and full protective clothing when fighting chemical fires.

Use water spray to cool nearby containers and structures exposed to fire.

UNUSUAL HAZARDS: This product will not burn. Use appropriate techniques for fighting surrounding fire.

6. ACCIDENTAL RELEASE MEASURES

SPILL PROCEDURES: Wear appropriate protective equipment. Avoid the generation of dust. Collect (Vacuum, Absorb, or Shovel) material and place in closable container(s) for disposal.

7. HANDLING AND STORAGE

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE: Avoid contact with eyes, skin and clothing.

NOTES ON HANDLING INFORMATION: Minimize dust generation during handling. Use adequate ventilation.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

VENTILATION: Adequate ventilation should be provided to keep concentrations below acceptable Exposure Limits. Discharge from the ventilation system should comply with the applicable air pollution control regulations.

EYE PROTECTION: Wear safety glasses or goggles to protect against exposure.

PROTECTIVE GLOVES: Use gloves as a standard industrial handling procedure.

RESPIRATORY PROTECTION: Appropriate respiratory protection is required when exposure to airborne contaminant is likely to exceed acceptable limits. Respirators should be selected and used in accordance with OSHA Subpart I (29 CFR 1910.134) and manufacturer's recommendations.

OTHER PERSONAL PROTECTIVE EQUIPMENT: None specified.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: White Powder

BOILING POINT: Not Applicable

VAPOR DENSITY (AIR=1): Non-Volatile

EVAP. RATE(BUTYL ACETATE=1): Non-Volatile

VOC, Wt.% (EPA METH.24): 0

BULK DENSITY: Not Available

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SOLUBILITY (in water): Insoluble

10. STABILITY AND REACTIVITY

STABILITY DATA: STABLE

POLYMERIZATION: WILL NOT OCCUR

HAZARDOUS DECOMPOSITION PRODUCTS: None known.

INCOMPATIBILITY
(MATERIALS TO AVOID): None known.

CONDITIONS/HAZARDS TO AVOID: None known.

11. TOXICOLOGICAL INFORMATION

No Toxicological data known.

12. ECOLOGICAL INFORMATION

ECOTOXICOLOGICAL INFORMATION: No data at this time

CHEMICAL FATE INFORMATION: No data at this time.

PERSISTENCE/DEGRADABILITY: No data at this time.

APPRAISAL: No data at this time.

MOBILITY: No data at this time.

13. DISPOSAL CONSIDERATIONS

DISPOSAL OF WASTE METHOD: Dispose in accordance with Federal, State and Local regulations.

14. TRANSPORT INFORMATION

DOT Shipping Name: NON-HAZARDOUS

DOT HAZARD CLASS: NONE

DOT LABEL(S): NONE

UN/NA NUMBER: NONE

PACKING GROUP: NONE

15. REGULATORY INFORMATION

SARA SECTION 302: None Found

SARA (311, 312) HAZARD CLASS: ACUTE HEALTH HAZARD

CHRONIC HEALTH HAZARD

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SARA 313 Title III Toxic Chemical List:

The following chemicals are 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.

100 % Barium compounds 27 % Metal as Ba

TSCA Inventory Status: This product (and/or all of its components) is in compliance with the U.S. EPA Toxic Substance Control Act, TSCA, (15 U.S.C. 2604).

16. OTHER INFORMATION

Revisions: The Format has been changed to meet the requirements of the new ANSI Standard Z400.1.

LABEL INFORMATION:

WARNING!

Skin, eye, and respiratory irritant.

Avoid contact with eyes, skin and clothing.

Avoid breathing dust.

Keep away from food products.

Wash thoroughly after handling and before eating, drinking or using cosmetic or tobacco products or toilet facilities.

Use with adequate ventilation.

Keep container closed when not in use.

FIRST AID: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. In case of contact, immediately flush eyes or skin with plenty of water. Remove contaminated clothing. Get medical attention.

IN CASE OF FIRE: Use water, dry chemical or carbon dioxide.

IN CASE OF SPILL: Collect and dispose in accordance with federal, state and local regulations.

FOR INDUSTRIAL USE ONLY.

DEFINITIONS AND ABBREVIATIONS :

ACGIH = American Conference of Governmental Industrial Hygienists

C (CEIL) = The concentration that shall not be exceeded during any part of the working exposure.

CAS # = Chemical Abstracts Service Registry Number

EPA = Environmental Protection Agency

IARC = International Agency for Research on Cancer

NIOSH = National Institute for Occupational Safety and Health

NTP = National Toxicology Program

OSHA = Occupational Safety and Health Administration

PEL = Permissible Exposure Limit

SARA = Superfund Amendments and Reauthorization Act

STEL = Short Term Exposure Limit. Usually a 15 minute time weighted average exposure.

TLV = Threshold Limit Values

TSCA = Toxic Substance Control Act

TWA = Time Weighted Average. Exposure concentration for a normal 8 hour day or 40 hour week.

VOC = Volatile Organic Content

DISCLAIMER: The information contained in this Material Safety Data Sheet (MSDS) has been compiled from sources believed to be reliable and to represent the most reasonable current opinion on the subject when the MSDS was prepared. No guarantee is made as to the correctness or sufficiency of the information. The user of this product must decide what safety measures are necessary to safely use this product, either alone or in combination with other products, and determine the regulatory compliance obligations under any applicable federal or state laws.