

**TO THE PURCHASER:** This MSDS contains important environmental, safety and health information for your employees. Federal regulations require that this information be made available to them. If you resell this product, a copy of this MSDS should be given to the buyer.

**PRODUCT IDENTIFICATION:** CM867/CM943  
 (Common Name) Ferro CM867/CM943 Yellow Underglaze

**DESCRIPTION:** Ceramic glaze - Dry  
 containing FRIT (TSCA Inventory CAS # 65997-18-4\*) plus the following typical glaze raw materials.

Clay (CAS 1332-58-7)

SECTION I

**MANUFACTURERS NAME:** Ferro Corporation, Frit Division

**MAIL:** 4150 East 56th. Street  
 P.O. Box 6550  
 Cleveland, Ohio 44101

**SHIP:** 4150 East 56th. Street  
 Cleveland, Ohio 44105

**TELEPHONE:** For chemical emergency, call CHEMTREC: (800) 424-9300  
 Ferro 24 hour Informational number: (216) 641-5324  
 Facility Informational number: (216) 641-8580

SECTION IIa - HAZARDOUS COMPONENTS

This glaze mixture contains the following potentially hazardous substances referenced by FED/OSHA in 29 CFR 1910.1200 :

<u>COMPONENT:</u>	<u>CAS No.</u>	<u>Exposure Limit (Air), mg/m<sup>3</sup></u>		
		<u>ACGIH/TLV</u>	<u>FED-OSHA/PEL</u>	<u>CAL-OSHA/PEL</u>
Barium, soluble compounds, as Ba	(b)	0.5	0.5	0.5
Cadmium compounds, as Cd	(b)	.01/.002 (r)	0.005	0.05/0.6 (c)
Crystalline silica	14808-60-7	0.1 (a)	(e)	0.1 (a)
Particulates not otherwise classified (Total Dust)	(b)	10/3 (r)	15.	10.

(b) Only present as part of frit CAS # 65997-18-4\*  
 (e) 10/(2 + %respirable quartz)

(c) Ceiling  
 (r) Respirable  
 (a) Respirable quartz

SECTION IIb - "SARA III" DATA

This product contains the following component(s) that require reporting under Section 313 of the Emergency Section of the Emergency Planning and Community Right-To-Know Act, also known as Title III of the SARA (Superfund Amendments and Reauthorization Act), and 40 CFR Part 372.

<u>COMPONENT:</u>	<u>CAS NO.</u>	<u>PERCENT PRESENT:</u> (a)
Barium compounds	(b)	< 15.0% as Ba
Cadmium compounds	(b)	< 7.5% as Cd
Zinc compounds	(b)	< 11.5% as Zn

- (a) The percent reported is based on the theoretical composition of this glaze mixture.
- (b) Only present as part of frit CAS # 65997-18-4\*

SECTION III - PHYSICAL DATA

SPECIFIC GRAVITY (H <sub>2</sub> O = 1)	<u>1.6-3.0</u>	MELTING POINT (° F.)	<u>&gt; 1000</u>
VAPOR PRESSURE (mm Hg)	<u>N/A</u>	BOILING POINT (° F.)	<u>N/A</u>
VAPOR DENSITY (Air = 1)	<u>N/A</u>	PERCENT VOLATILE (by volume)	<u>N/A</u>
SOLUBILITY IN WATER	<u>Negligible</u>	EVAPORATION RATE (butyl acetate = 1)	<u>N/A</u>
APPEARANCE AND ODOR	<u>Off white powder, slight earthy odor</u>		

SECTION IV - FIRE & EXPLOSION HAZARD DATA

FLASH POINT: N/A FLAMMABLE LIMITS: N/A  
 EXTINGUISHING MEDIA: None  
 SPECIAL FIRE FIGHTING PROCEDURES: None UNUSUAL FIRE & EXPLOSION HAZARDS: None

SECTION V - REACTIVITY DATA

STABILITY: Stable X Unstable N/A Conditions to avoid N/A  
 INCOMPATIBILITY: (Materials to avoid) N/A  
 HAZARDOUS DECOMPOSITION OR BYPRODUCTS: Avoid fumes from firing  
 HAZARDOUS POLYMERIZATION: Will not occur X (Conditions to avoid) N/A

**SECTION VI - HEALTH HAZARD DATA**

**PRINCIPAL ROUTES OF ABSORPTION:** Inhalation and Ingestion

**EFFECTS OF OVEREXPOSURE:** Of primary concern is chronic overexposure to cadmium. The initial warning properties are poor. Prolonged or repeated inhalation and/or ingestion of cadmium containing frit dust may cause lung damage or kidney disfunction.

Excessive ingestion of barium containing frit may cause inflammation of the gastrointestinal tract, muscular paralysis, slow pulse rate, irregular heart contractions, and low blood potassium levels.

Metal fumes from firing may cause lung inflammation and injury in terms of hours with symptoms of chest pains, chills, cough, headache, and diarrhea.

Prolonged contact with frit dust can be very irritating to the eyes and/or skin. High dust levels can be irritating to the respiratory tract. Excessive inhalation of crystalline silica containing dusts over many years can result in silicosis, a disabling lung disease.

With adequate ventilation, dust control, and good personal hygiene, symptoms of overexposure should not occur. Advise regular medical monitoring of employees by a physician competent in industrial health.

**CARCINOGENICITY:** In IARC Monograph 58, cadmium and its compounds are undifferentiated as Group 1 human carcinogens.

In IARC Supplement 7, crystalline silica is given a 2A rating which indicates "sufficient evidence" for carcinogenicity to animals and "limited evidence" for carcinogenicity to humans. NTP's SIXTH ANNUAL REPORT ON CARCINOGENS ranks respirable crystalline silica as "reasonably anticipated to be a carcinogen."

**EMERGENCY AND FIRST AID PROCEDURES:** If overexposure is suspected move employee 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.

**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.

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**SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE**

**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED:** Uncontaminated material may be recovered and re-used. If contaminated scoop, vacuum, or wash into a receptacle for disposal.

**WASTE DISPOSAL METHOD:** Follow Federal or State and Local regulations for disposal. Cadmium and barium are listed in US-EPA Code of Federal Regulations 40, Part 261.24. Testing of the waste may be required to determine status under the hazardous waste regulations.

**PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:** Protect containers against physical damage; store in dry area away from feed and food products.

**OTHER PRECAUTIONS:** Employees should wash and change into clean clothes before going home.

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SECTION VIII - CONTROL MEASURES

RESPIRATORY PROTECTION: (Specify type) Use a NIOSH approved dust and/or fume respirator as necessary.

VENTILATION: Local exhaust - Recommended for dust control; vent dust to collector.

PROTECTIVE GLOVES: Use judgement - work gloves recommended.

EYE PROTECTION: Use judgement - safety glasses recommended.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: Wear appropriate clean, protective clothing such as, but not limited to, coveralls, smocks, aprons, gloves, shoes and hats.

WORK/HYGIENIC PRACTICES: Food, beverages and smoking materials should NOT be in the work area. Hygiene is very important; employees should wash thoroughly before eating, drinking, smoking or applying cosmetics.

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Non-Standard Abbreviations Used on Material Safety Data Sheets

ACGIH - American Conference of Government Industrial Hygienists

CAL/OSHA - California Occupational Safety and Health Administration

CAS # - Chemical Abstract Service Number

CFR - Code of Federal Regulations

FED/OSHA - Federal Occupational Safety and Health Administration

IARC - International Agency for Research on Cancer

MSDS - Material Safety Data Sheet

N/A - Not Applicable

NIOSH - National Institute for Occupational Safety and Health

NTP - National Toxicology Program (Department of Health and Human Services)

PEL - Permissible Exposure Limit

TSCA - Toxic Substances Control Act

TLV - Threshold Limit Value (registered terminology of ACGIH)

TWA - Time Weighted Average

US-EPA - United States Environmental Protection Agency