



MATERIAL SAFETY DATA SHEET

1 PRODUCT AND COMPANY IDENTIFICATION

Product Name: Cu-D Glass Seal/Cu-A Glass Seal

Synonyms: TSCA Description: Frit is a mixture of inorganic chemical substances made by rapidly quenching a molten, complex combination of materials, confining the chemical substances thus manufactured as non-migratory components of glassy solid flakes or granules.

Manufacturer Name:

Federal-Mogul Corporation
6420 Glenn Highway Road
Cambridge OH 43725

Emergency Telephone:

Medical Emergency (24HR): 1-800-56 SPILL
(800-567-7455)
Transport ER Ph. (outside NA): 703-527-3887
(Accepts collect calls)

Non-emergency Telephone:

General Information: 248-354-9844

Intended Use: Glass for Metal Sealing of Spark
Plug components

2 HAZARDS IDENTIFICATION

Emergency Overview

Physical State: Granules

Color: Copper orange

Odor: Almost odorless

CAUTION!

May cause eye, skin and respiratory irritation.

Potential Health Effects

Inhalation: May cause irritation to the respiratory system. Exposure over a long period of time may cause damage to the liver and kidneys.

Eye Contact: May irritate eyes. Exposed may experience eye tearing, redness, and discomfort.

Skin Contact: May cause irritation. Prolonged skin contact may cause dermatitis.

Ingestion: May be harmful if swallowed. Gastrointestinal symptoms, including upset stomach.

Chronic Health Effects: Danger of adverse health effects by prolonged exposure. May cause damage to the liver and kidneys. Chronic inhalation of dust/fume causes metal fume fever.

Target Organ(s): | Respiratory system | Eye | Kidney | Liver | Lung | Skin |

OSHA Regulatory Status: When used for its intended purpose, this material is classified as hazardous in

accordance with OSHA 29CFR 1910.1200.

Environment: Not regarded as an environmental hazard under current legislation.

3 COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration*
†Copper	7440-50-8	30 - 80%
Frit	65997-18-4	20 - 60%
†Octadecanoic acid, butyl ester	123-95-5	0 - 5%
†Octadecanoic acid	57-11-4	0 - 5%

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume. † This chemical is hazardous according to OSHA/WHMIS criteria.

4 FIRST AID MEASURES

Inhalation: Move to fresh air. Get medical attention.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms occur after washing.

Skin Contact: Wash skin thoroughly with soap and water. Get medical attention if irritation develops and persists.

Ingestion: Do not induce vomiting. Seek medical advice.

Note to Physician: Can cause lung damage.

5 FIRE-FIGHTING MEASURES

Extinguishing Media: Use fire-extinguishing media appropriate for surrounding materials.

Unsuitable Extinguishing Media: None.

Special Fire Fighting Procedures: Use standard firefighting procedures and consider the hazards of other involved materials.

Unusual Fire & Explosion Hazards: Fire or excessive heat may produce hazardous decomposition products.

Hazardous Combustion Products: Carbon Dioxide, Carbon Monoxide, Metal Oxides, Metallic fumes

Protective Measures: Self contained breathing apparatus and full protective clothing must be worn in case of fire.

Flammability Class: NFPA Rating Fire = 0 Materials that must be preheated before ignition can occur.

6 ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid generation and spreading of dust. Wear necessary protective equipment.

See Section 8 of the MSDS for Personal Protective Equipment.

Spill Cleanup Methods: Use a vacuum cleaner. If not possible, moisten dust with water before it is collected with shovel, broom or the like. Do not vacuum clean unless vacuum cleaners are equipped with HEPA filter. Do not use compressed air when cleaning.

Environmental Precautions: Avoid discharge into drains. Collect and dispose of spillage as indicated in section 13 of the MSDS.

Notification Procedures: Inform Authorities if large amounts are involved.

7 HANDLING AND STORAGE

Handling: All handling to take place in well-ventilated area. Use work methods which minimize dust production. Avoid inhalation of dust and contact with skin and eyes. Do not use compressed air when cleaning.

Storage: Store in a dry place. Store in tightly closed original container in a well-ventilated place.

8 EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Limits:

Chemical Name	Source	Type	Exposure Limits	Notes
Copper (Fume.)	ACGIH	TWA	0.2 mg/m ³	
Copper	NIOSH Guide	Concentration	100 mg/m ³	
Copper	NIOSH Guide	Concentration undetermined	0 No UOM specified or Needed.	
Copper (Fume.)	US. OSHA Table Z-1	TWA	0.1 mg/m ³	as Cu
Octadecanoic acid	ACGIH	TWA	10 mg/m ³	
Octadecanoic acid, butyl ester	ACGIH	TWA	10 mg/m ³	

Engineering Controls: Adequate ventilation should be provided so that exposure limits are not exceeded. Use process enclosures, local exhaust ventilation, or other engineering controls to control sources of dust, mist or vapor.

Respiratory Protection: Use a NIOSH –approved respirator if there is a potential for exposure to dust exceeding exposure limits (See 29 CRF 1910.134, respiratory protection standard).

Eye Protection: Wear safety glasses with side shields (or goggles).

Hand Protection: Wear chemical-resistant gloves. Contact glove manufacturer for specific information.

Skin Protection: Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene Measures: Do not eat, drink or smoke when using the product. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9 PHYSICAL AND CHEMICAL PROPERTIES

Color: Copper orange
Odor: Almost odorless
Odor Threshold: Not applicable.
Physical State: Granules
pH: Not applicable
Melting Point: Not applicable.
Freezing Point: Not applicable.
Boiling Point: Not applicable.
Flash Point: Not applicable.
Evaporation Rate: Not applicable.
Flammability Limit - Upper (%): Not applicable.
Flammability Limit - Lower (%): Not applicable.
Vapor Pressure: Not applicable.
Vapor Density (Air=1): Not applicable.
Specific Gravity: Not applicable.
Solubility in Water: Not applicable
Solubility (Other): Not applicable.
Partition Coefficient (n-Octanol/water): Not applicable.
Autoignition Temperature: Not applicable.
Decomposition Temperature: Not applicable.
Particle Size: 20 mesh USS
Bulk Density: 1000 kg/m³ - 1300 kg/m³

10	STABILITY AND REACTIVITY
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Stability: Material is stable under normal conditions.

Conditions to Avoid: Avoid dust formation.

Incompatible Materials: Strong oxidizing agents. Strong acids.

Hazardous Decomposition Products:

At Elevated Temperatures:	Carbon Dioxide, Carbon Monoxide, Metal Oxides, Metallic fumes
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Possibility of Hazardous Reactions: Will not occur.

11	TOXICOLOGICAL INFORMATION
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General Information: Toxicity data for the components in the product are available and have been used in the evaluation of the product.

Specified Substance(s)

Acute Toxicity:

Component Chemical Name	Test Results
Octadecanoic acid, butyl ester	Oral LD50 (Rat): >5.0 ml/kg
Octadecanoic acid	Dermal LD50 (Rabbit): > 5000 mg/kg

Listed Carcinogens: None

Product Information

Other Acute: May cause eye, skin and respiratory irritation. Inhalation of powder or fumes may cause metal fume fever.

Chronic Toxicity: Danger of adverse health effects by prolonged exposure. May cause damage to the liver and kidneys.

12 ECOLOGICAL INFORMATION

Ecotoxicity: No data available.

Mobility: Expected to partition to sediment and wastewater solids.

Persistence and Degradability: No data available

Bioaccumulation Potential: Accumulates in soil and sediment.

Other Adverse Effects: No data available

13 DISPOSAL CONSIDERATIONS

General Information: Dispose of waste and residues in accordance with local authority requirements.

Disposal Methods: Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Container: Since emptied containers retain product residue, follow label warnings even after container is emptied.

14 TRANSPORT INFORMATION

DOT Not Regulated

TDG Not Regulated

IATA Not Regulated

IMDG Not Regulated

15 REGULATORY INFORMATION

Canadian Controlled Products Regulations: This product has been classified according to the hazard criteria of the Canadian Controlled Products Regulations, Section 33, and the MSDS contains all required information.

WHMIS Classification: D2B

Mexican Dangerous Statement: This is a Mexican "dangerous" product.

Inventory Status

This product or all components are listed on the following inventory: AICS, CHINA, DSL, TSCA

Inventory Status: All ingredients are either listed or exempt from listing on EINECS, DSL or TSCA.

US Regulations**CERCLA Hazardous Substance List (40 CFR 302.4):**

Chemical Name	RQ
Copper	5000 lbs

SARA Title III

Section 302 Extremely Hazardous Substances (40 CFR 355, Appendix A): None

Section 311/312 (40 CFR 370):

Acute (Immediate) Chronic (Delayed) Fire Reactive Pressure Generating

Section 313 Toxic Release Inventory (40 CFR 372):

Chemical Name	CAS-No.	Concentration
Copper	7440-50-8	30 - 80%

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): None

Clean Water Act Section 311 Hazardous Substances (40 CFR 117.3): None

Drug Enforcement Act: None

TSCA: No component is listed on TSCA Sections 4(a), 5(a)(2), 5(e) or 12(b).

State Regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): None

Massachusetts Right-To-Know List: Copper

Michigan Critical Materials List (Michigan Natural Resources and Environmental Protection Act (Act. 451 of 1994)): None

Minnesota Hazardous Substances List: Copper; Octadecanoic acid

New Jersey Right-To-Know List: Copper

Pennsylvania Right-To-Know List: CopperNone

Rhode Island Right-To-Know List: Copper

16	OTHER INFORMATION
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HAZARD RATINGS

	Health Hazard	Fire Hazard	Reactivity Hazard	Special Hazard
NFPA	1	0	NA	NA

	Health Hazard	Fire Hazard	Reactivity Hazard	Personal Protection
HMIS	1*	0	NA	E

0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe * - Chronic Health Effect

E - Safety Glasses, Gloves & Dust Respirator

Issue Date: 30-June-2006

Supercedes Date: 30-June-2006

SDS No.: 1003365

Disclaimer: The information provided on this data sheet was abstracted from supplier material safety data sheets and standard references in occupational health and toxicology. Federal-Mogul makes no representation or warranty with respect to the information obtained from such references. The information is however, as of the date provided, true and accurate to the best of Federal-Mogul's knowledge, and should be used to make an independent determination of the methods to safeguard workers and the environment.