Material Safety Data Sheet

FLINT - FERROCERIUM (UN1323)

Identity (Trade Name As Used On Label)

G. C. Fuller Mfg. Co., Inc.

Manufacturer

1 Shurlite Drive

Address

Lawrenceburg, IN 47025

Phone Number (For Information)

(812) 539-2831

Emergency Phone Number Telex*

MSDS Number*

69523-06-4

CAS Number*

October 1, 2003

Date Prepared

Prepared By*

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

SECTION 1 - MATERIAL IDENTIFICATION AND INFORMATION

COMPONENTS — Chemical Name & Common Names (Hazardous Components 1% or greater; Carcinogens 0.1% or greater)	%*	OSHA PEL	ACGIH TLV	OTHER LIMITS RECOMMENDED
Rare Earth Metals / Mischmetal	78			
* Cerium	39	NA	NA	
* Lanthanum	18	NA	NA	
* Neodymium	14	NA	NA	
* Praseodymium	7	NA	NA	
Iron (Oxide Fume)	20	10mg/m^3	5mg/m^3	
Magnesium (Oxide Fume)	2	15mg/m^3	10mg/m^3	
Non-Hazardous Ingredients				
TOTAL	100			

SECTION 2 - PHYSICAL / CHEMICAL CHARACTERISTICS

Boiling Point: about 6800° F

Specific Gravity (H_2O = 1): 6.35

Vapor Pressure (mm Hg and Temperature): NA

Melting Point: about 2000° F

Vapor Density (Air = 1): NA

Evaporation Rate (_____ = 1): NA

Solubility in Water: Insoluble

Water Reactive: see note on water reactivity (Exhibit B)

Appearance and Odor: cylindrical pellets, no odor

SECTION 3 - FIRE AND EXPLOSION HAZARD DATA

Flash Point and Method Used: None

Auto-Ignition Temperature: 900° F

Flammability Limits in Air % by Volume: NA

LEL: NA

UEL: NA

Extinguisher Media: Lighter Flints do not burn

Special Fire Fighting Procedures: None

Unusual Fire and Explosion Hazards: see note on flammability of Ferrocerium in powder form (Exhibit B)

*Optional

SECTION 4 - REACTIVITY HAZARD DATA

STABILITY
☒ Stable
☐ Unstable

Conditions To Avoid: see note on Water Reactivity - Will dissolve in acid. Cerium is a strong reducing agent.

Incompatability (Materials to Avoid): Acids, strong oxidizers, strong bases, halogens, phosphorus, sulfer

Hazardous Decomposition Products: None

HAZARDOUS POLYMERIZATION
☐ May Occur
☒ Will Not Occur

Conditions To Avoid: NA

SECTION 5 - HEALTH HAZARD DATA

PRIMARY ROUTES OF ENTRY
☒ Inhalation ☐ Ingestion
☐ Skin Absorption ☐ Not Hazardous

CARCINOGEN LISTED IN
☐ NTP ☐ OSHA
☐ IARC Monograph ☒ Not Listed

HEALTH HAZARDS

Acute: see note on hHealth Hazards associated with Rare Earth Metals and Magnesium (Exhibit A)

Chronic:

Signs and Symptoms of Exposure:

Medical Conditions Generally Aggravated by Exposure: None Known

EMERGENCY FIRST AID PROCEDURES - Seek medical assistance for further treatment, observation and support if necessary.

Eye Contact: Remove particles from eye and flush with large amounts of fresh water.
May cause irritation due to abrasion.

Skin Contact: Wash with soap and water. Remove contaminated clothing and launder.
May cause irritation due to abrasion.

Inhalation: Remove victim from fumes and seek medical attention.
Inhalation of material in powder form may cause irritation.

Ingestion: Give one or two glasses of milk. Seek immediate medical aid.
No adverse effects expected under normal usage.

SECTION 6 - CONTROL AND PROTECTIVE MEASURES

Respiratory Protection (Specify Type): In the presence of dust or powder use NIOSH approved Schedule 21C respirator.

Protective Gloves: When handling powder or dust.

Eye Protection: Use safety glasses to prevent contact irritation.

VENTILATION TO BE USED
☒ Local Exhaust in dusty areas
☒ Mechanical (general) use for general control
☐ Special None
☐ Other (specify) None

Other Protective Clothing and Equipment: Appropriate clothing to protect against physical hazards.

Hygienic Work Practices: General work/safety hygenic procedures

SECTION 7 - PRECAUTIONS FOR SAFE HANDLING AND USE / LEAK PROCEDURES

Steps to be Taken If Material Is Spilled Or Released: Avoid crushing pellets into dust. Striking with metallic objects may cause sparking.
Avoid exposure to acids. Avoid contact with water in the presence of powder or dust.

Waste Disposal Methods: In accordance with appropriate Federal, State and local regulations.

Precautions to be Taken in Handling and Storage:
Store in clean dry area. Prolonged exposure to moisture may cause pellets to degenerate into powder.

Other Precautions and/or Special Hazards:
Wash hands after handling, before eating. Avoid inhalation of dust. Avoid skin contact with dust. Do not ingest.

NFPA Rating* Health___ Flammability___ Reactivity___ Special___

HMIS Rating* Health___ Flammability___ Reactivity___ Personal Protection___

*Optional

SECTION V - HEALTH HAZARD DATA

MISCHMETAL

HEALTH HAZARDS - Acute and Chronic

Chronic exposure to mischmetal may decrease the coagulatory properties of the blood and, therefore can delay blood clotting and hemorrhaging may result. Cerium may cause polycythemia (overabundance of red blood cells). Acute exposure may yield flu-type symptoms several hours after exposure.

Carcinogenicity: NTP? IARC Monograph? OSHA Regulations? Mischmetal and individual components have not been identified as known or suspected carcinogens by NTP, IARC or OSHA.

Signs and Symptoms of Exposure: Flu-type symptoms consisting of chills and fever occuring several hours later. Rare Earth metal fumes affect the central nervous system similar to that of an extensive welding operation.

MAGNESIUM

HEALTH HAZARDS - Acute and Chronic

Chronic exposure to magnesium or oxide dust should be a low health risk by inhalation and should be treated as nuisance dust. Exposure to magnesium and oxide fume dust burning can result in metal fume fever similar to but milder than that induced by zinc oxide fumes.

Carcinogenicity: NTP? IARC Monographs? OSHA Regulations? Magnesium has not been identified as a known or suspected carcinogen.

Signs and Symptoms of Exposure: Temporary symptoms can include fever, chills, nausea, vomiting and muscular pain. Onset of symptoms occur 4-12 hours after exposure and is usually complete in 24-48 hours. Meeting exposure limits in Section II should prevent fume fever from occuring.

ZINC

HEALTH HAZARDS - Acute and Chronic

Chronic exposure to zinc metal or oxide dust may cause irritation to eyes, nose and throat; metallic taste in mouth; metal fume fever or produce flu-like symptoms.

Carcinogenicity: NTP? IARC Monographs? OSHA Regulations? Zinc has not been identified as a known or suspect carcinogen.

Signs and Symptoms of Exposure: Flu-type symptoms consisting of fever, chills, nausea, vomiting and muscular pain. Prevention by meeting exposure limits in Section II is easily attained.

PLEASE NOTE:

The information and recommendations contained herein are offered for the user's consideration and examination and it is the user's responsibility to satisfy him/herself that they are suitable and complete for his/her particular use. G. C. Fuller Mfg. Co., Inc. does not warrant or guarantee the accuracy or reliability of the information and recommendations herein and shall not be liable for any loss or damage arising out of the user thereof.

Exhibit B
Material Safety Data Sheet
Ferrocerium (Flint)
October 1, 2003

Flammability of Ferrocerium in Powder Form:

Ferrocerium is flammable in powder form as are most metals, i.e. Aluminum and Magnesium. Ferrocerium in pellet form is not flammable and although, in fact, the auto-ignition point is specified by the manufacturer of the Ferrocerium to be 900 degrees Farenheit, these pellets have been subjected to 1700 degrees Farenheit over a prolonged period of time without flammability or deterioration.

Water Reactivity of Ferrocerium:

Ferrocerium pellets will degenerate into powder over an extended period of time, usually measured in years. The presence of moisture accelerates this deterioration. The pellets are coated with a moisture resistant lacquer to extend shelf life. It is recommended that Ferrocerium pellets be disposed of if they show signs of deterioration as the resulting powder is flammable.

IMPORTANT NOTE: