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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION Fe		PRODUCT NAME Iron
SUPPLIER: Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030	RECOMMENDED USE: Laboratory Chemicals Scientific Research	EMERGENCY TELEPHONE NUMBERS US: 001-800-424-9300 Europe: 001-703-527-3887

Section 2- HAZARD(S) IDENTIFICATION

Physical Hazards: Flammable Solids (Category 2)	Health Hazards: Not Classified
Environmental Hazards: Not Classified	OSHA Defined Hazards: Not Classified
LABEL ELEMENTS: Signal Word: Warning	
	
HAZARD STATEMENTS	
-The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.	
-H228: Flammable solid	
PRECAUTIONARY STATEMENTS	
-P210: Keep away from heat, sparks, hot surfaces, open flames and other ignition sources. No smoking.	
-P240: Ground/bond container and receiving equipment	
-P241: Use explosion proof electrical/ventilating/lighting equipment	
-P280: Wear protective gloves, eye protection, face protection and protective clothing.	
-P370+P378: In case of fire: Use appropriate media to extinguish	
-P420: Store away from other materials	
-P501: Dispose of contents/container to an approved waste disposal plant	
Hazards not otherwise classified (HNOC):	
-None identified.	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Iron	7439-89-6	55.85 g/mol

Section 4- FIRST AID MEASURES

Inhalation: Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Consult a physician if symptoms develop or persist.

Skin Contact: Wash off with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if irritation develops or persists.

Eye Contact: As a precaution, flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Consult a physician if irritation develops or persists.

Ingestion: Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. If ingestion of a large amount does occur, call a poison control center immediately.

Most Important Symptoms/Effects: Direct contact with eyes may cause temporary irritation

Indication of any Immediate Medical Attention and Special Treatment Needed: Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:

Water Fog, Foam, Dry Chemical Powder, Carbon Dioxide (CO₂)

Unsuitable Extinguishing Media:

Do not use water jet as an extinguisher, as this will spread the fire.

Specific Hazards Arising from the Chemical:

Gases hazardous to health may be formed.

General Fire Hazards:

Flammable solid

Protective Equipment & Precautions for Firefighters:

As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.

Specific Methods:

- Use standard firefighting procedures and consider the hazards of other involved materials.
- In case of fire and/or explosion do not breathe fumes.
- Move containers from fire area if you can do so without risk.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection see section 8.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.

Methods for Containment & Clean Up: -

- Eliminate all ignition sources, no smoking, flares, sparks or flames in immediate area.
- Take precautionary measures against static discharge.
 - Use only non-sparking tools.
 - Stop the flow of material, if this is without risk.
 - Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water.
 - Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.
 - Never return spills to original containers for re-use.
 - For waste disposal see Section 13.

Section 7- HANDLING AND STORAGE

Handling: Provide adequate precautions such as electrical grounding and bonding or inert atmospheres. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Wear appropriate personal protection equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling. Use care in handling/storage.

Storage: Keep away from heat, sources of ignition, sparks and open flame. Store in a cool, dry and well-ventilated place out of direct sunlight. Store in original tightly closed container. Keep in an area equipped with sprinklers. Store away from incompatible materials. (see Section 10)

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Occupational Exposure Limits: No exposure limits noted for ingredient(s)

Biological Limit Values: No biological exposure limits noted for the ingredient(s)

Engineering Controls: Explosion proof general and local exhaust ventilation.

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields. Use equipment for eye protection tested and approved under appropriate standards such as NIOSH (US) or EN 166 (EU).

Skin and Body Protection: Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Wear suitable protective clothing. Wear appropriate thermal protective clothing when necessary. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EU EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 1,538°C (2,800.4°F)

Boiling Point/Range: 2,861°C (5181.8°F)

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): Flammable solid

Flammability or Explosion Limits:

Upper: No data available

Lower: No data available

Vapor Pressure: No information available

Vapor Density: No information available

Relative Density: 7.86 g/cm³ at 25°C (77°F)

Solubility (Water): No information available

Partition coefficient; n-octanol/water: No information available

Auto Ignition Temperature: No information available

Decomposition Temperature: No information available

Viscosity: No information available

Explosive Properties: No information available

Oxidizing Properties: No information available

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: No information available

Stability: Stable under recommended storage conditions.

Conditions to Avoid: Heat, flames and sparks. Contact with incompatible materials

Incompatible Materials: Strong oxidizing agents
Hazardous Decomposition Products: No information available
Hazardous Polymerization: No information available
Hazardous Reactions: No information available

Section 11- TOXICOLOGICAL INFORMATION

Information on likely Routes of Exposure:

Inhalation: No adverse effects due to inhalation are expected
Skin Contact: No adverse effects due to skin contact are expected
Eye Contact: Direct contact with eyes may cause temporary irritation
Ingestion: Expected to be a low ingestion hazard

Information on Toxicological Effects:

Acute Toxicity: No information available
Inhalation: No information available
Skin Corrosion/Irritation: Prolonged skin contact may cause temporary irritation.
Serious eye damage/irritation: Direct contact with eyes may cause temporary irritation
Respiratory or Skin Sensitization: No information available
Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA
Germ Cell Mutagenicity: No information available
Reproductive Effects: No information available
Development Effects: No information available
Specific Target Organ Toxicity – single exposure: No information available
Specific Target Organ Toxicity – repeated exposure: No information available
Aspiration Hazard: No information available
Additional Information: RTECS: Not available

Section 12- ECOLOGICAL INFORMATION

Toxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Toxicity to Fish:

-LC50 – Channel catfish (*ictalurus punctatus*) – 500 mg/l – 96.0 h

Persistence and Degradability: No information available

Bioaccumulation/Accumulation: No information available

Mobility in Soil: No information available

Results of PBT & vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other Adverse Effects: No information available.

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose of contaminated packaging as unused product. Dispose in accordance with all applicable regulations.

Section 14- TRANSPORT INFORMATION

DOT: Not regulated as dangerous goods

IATA: Not regulated as dangerous goods

IMDG/IMO: Not regulated as dangerous goods

Section 15- REGULATORY INFORMATION

US Federal Regulations: This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D): Not regulated
U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not regulated
SARA 304 Emergency Release Notification: Not regulated
SARA 302 Extremely Hazardous Substance: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 313 (TRI Reporting): This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313
SARA 311/312 Hazardous Chemical: No
SARA Hazard Categories:
 Immediate Hazard: No
 Delayed Hazard: No
 Fire Hazard: Yes
 Pressure Hazard: No
 Reactive Hazard: No
CERCLA Hazardous Substance List (40 CFR 302.4): Not Listed
US California Candidate Chemicals List Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3 subd. (a)): Iron (CAS-No: 7439-89-6)

Section 16- OTHER INFORMATION

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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