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SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION ErF3		PRODUCT NAME Erbium Fluoride
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	
Classification: This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)	
Acute Oral Toxicity: Category 3 (H301)	Acute Inhalation Toxicity: Category 3 (H331)
Acute Dermal Toxicity: Category 3 (H311)	
LABEL ELEMENTS: Signal Word: Danger	
	
<u>HAZARD STATEMENTS</u>	
<ul style="list-style-type: none"> -H301: Toxic if swallowed -H311: Toxic in contact with skin -H331: Toxic if inhaled 	
<u>PRECAUTIONARY STATEMENTS</u>	
<ul style="list-style-type: none"> -P261: Avoid breathing dust, fume, gas, mist, vapors, spray -P264: Wash skin thoroughly after handling -P270: Do not eat, drink or smoke when using this product -P271: Use only outdoors or in a well-ventilated area -P280: Wear protective gloves, protective clothing, eye protection and face protection -P301+P310: IF SWALLOWED: Immediately call a Poison Center/Doctor -P302+P352: IF ON SKIN: Wash with plenty of soap and water -P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing -P312: Call a poison center/doctor if you feel unwell -P322: Specific measures (see supplemental first aid instructions on this label) -P330: Rinse mouth -P361: Take off immediately all contaminated clothing -P363: Wash contaminated clothing before reuse -P403+P233: Store in a well-ventilated place. Keep container tightly closed. -P405: Store locked up -P501: Dispose of contents/container to an approved waste disposal plant 	
Hazards not otherwise classified (HNOC):	
<ul style="list-style-type: none"> -Contact with acids liberates very toxic gas. -Weak hydrogen fluoride-releaser 	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Erbium Fluoride	13760-83-3	224.25 g/mol

Section 4- FIRST AID MEASURES

General Advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area. Hydrofluoric (HF) acid burns require immediate and specialized first aid and medical treatment. Symptoms may be delayed up to 24 hours depending on the concentration of HF. After decontamination with water, further damage can occur due to penetration/absorption of the fluoride ion. Treatment should be directed toward binding the fluoride ion as well as the effects of exposure. Skin exposures can be treated with a 2.5% calcium gluconate gel/paste repeated until burning ceases. More serious skin exposures may require subcutaneous calcium gluconate except for digital areas unless the physician is experienced in this technique, due to potential for tissue injury from increased pressure. Absorption can readily occur through the subungual areas and should be considered when undergoing decontamination. Prevention of absorption of the fluoride ion in cases of ingestion can be obtained by giving milk, chewable calcium carbonate tablets or Milk of Magnesia to conscious victims. Conditions such as hypocalcemia, hypomagnesemia and cardiac arrhythmias should be monitored for, since they can occur after exposure.

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

Skin Contact: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Take victim immediately to the hospital. Consult a physician. First treatment with calcium gluconate paste.

Eye Contact: As a precaution, flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Ingestion: Rinse mouth with water. Never give anything by mouth to an unconscious person. Consult a physician.

Most Important Symptoms/Effects: The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11.

Indication of any Immediate Medical Attention and Special Treatment Needed: No data available

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:

Dry powder

Unsuitable Extinguishing Media:

No Information Available

Specific Hazards Arising from the Chemical:

Hydrogen Fluoride, Erbium Oxides

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.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ensure adequate ventilation. Wear respiratory protection. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. Evacuate personnel to safe areas. For personnel protection, see Section 8.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Do not let product enter drains. See Section 12 for additional ecological information.

Methods for Containment & Clean Up: Pick up and arrange disposal without creating dust. Sweep up and shovel. Do not flush with water. Keep in suitable, closed containers for disposal. For waste disposal see Section 13.

Section 7- HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions, see Section 2.

Storage:

Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Do not store near acids. Keep in a dry place.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Components with Workplace Control Parameters:

Component	CAS-No.	Value	Control Parameters	Basis
Erbium Fluoride	13760-83-3	TWA	2.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants
		TWA	2.500000 mg/m3	USA. Occupational Exposure Limits (OSHA) Table Z-2
		Remarks	Z37.28-1969	
		TWA	2.500000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Bone Damage Fluorosis Substance for which there is a biological exposure index or indices (see BEI Section) Not classifiable as a human carcinogen Varies		

Biological Occupational Exposure Limits:

Component	CAS-No.	Parameters	Value	Biological Specimen	Basis
Erbium Fluoride	13760-83-3	Fluoride	3.0000 mg/g	In Urine	ACGIH-Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Fluoride	10.0000 mg/g	In Urine	ACGIH-Biological Exposure Indices (BEI)
	Remarks	End of shift (as soon as possible after exposure ceases)			
		Fluoride	2 mg/l	Urine	ACGIH-Biological Exposure Indices (BEI)
	Remarks	Prior to shift (16 hours after exposure ceases)			
		Fluoride	3 mg/l	Urine	ACGIH-Biological Exposure Indices (BEI)
	Remarks	End of shift (as soon as possible after exposure ceases)			

Engineering Measures: Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. Wash hands before breaks, at the end of the workday and immediately after handling the product.

Personal Protective Equipment:

Eye/Face Protection: Safety glasses and face shield. 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.

Complete suit protecting against chemicals. 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 N99 (US) or type P2 (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).

Control of Environmental Exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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: No information available
Boiling Point/Range: No information available
Flash Point: Not applicable
Evaporation Rate: No information available
Flammability (solid,gas): No information available
Flammability or Exposure Limits:
 Upper: No data available
 Lower: No data available
Vapor Pressure: No information available
Vapor Density: No information available
Relative Density: No information available
Solubility: 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 data available.

Stability: Stable under recommended storage conditions.

Conditions to Avoid: Avoid moisture

Incompatible Materials: Strong reducing agents

Hazardous Decomposition Products:

Hazardous decomposition products formed under fire conditions- Hydrogen Fluoride, Erbium Oxides
Other decomposition products-No information available

Hazardous Reactions: No information available

Section 11- TOXICOLOGICAL INFORMATION

Acute Toxicity:

Product Information/Component Information:

Acute Toxicity: No information available

Skin Corrosion/Irritation: No information available

Serious eye damage/irritation: No information available

Respiratory or Skin Sensitization: No information available

Carcinogenicity: This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP or EPA classification.

-**IARC:** 3 – Group 3: Not classifiable as to its carcinogenicity to humans (Erbium Fluoride)

-**IARC:** No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen.

-**NTP:** No component of this product present at levels greater than or equal to 0.1% is identified

as a known or anticipated carcinogen.

-OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

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

-Fluoride ion can reduce serum calcium levels possibly causing fatal hypocalcemia, salivation, nausea, abdominal pain, vomiting, fever, rapid respiration, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache (Erbium Fluoride)

-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Section 12- ECOLOGICAL INFORMATION

Toxicity: No information available

Persistence and Degradability: No information available

Bioaccumulation/Accumulation: No information available

Mobility in Soil: No information available

Results of PBT and 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. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Section 14- TRANSPORT INFORMATION

DOT:

UN-No: 3288

Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Erbium Fluoride)

Hazard Class: 6.1

Packing Group: III

Poison Inhalation Hazard: No

IATA:

UN-No: 3288

Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Erbium Fluoride)

Hazard Class: 6.1

Packing Group: III

IMDG/IMO:

UN-No: 3288

Proper Shipping Name: Toxic solid, inorganic, n.o.s. (Erbium Fluoride)

Hazard Class: 6.1

Packing Group: III

EMS-No: F-A, S-A

Section 15- REGULATORY INFORMATION

US Federal Regulations:

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III,

Section 302

SARA 313: 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 Hazards: Acute Health Hazard

HMIS (USA):

Health Hazard: 2

Chronic Health Hazard:

Flammability: 0

Physical Hazard: 0

National Fire Protection Association (USA):

Health Hazard: 2

Fire Hazard: 0

Reactivity Hazard: 0

US California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

US Massachusetts Right-to-Know Components: No components are subject to the Massachusetts Right to Know Act

US New Jersey Right-to-Know Act:

Component	CAS No.	Revision Date
Erbium Fluoride	13760-83-3	2008-06-01

US Pennsylvania RTK – Hazardous Substances:

Component	CAS No.	Revision Date
Erbium Fluoride	13760-83-3	2008-06-01

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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