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## SAFETY DATA SHEET

| Section 1- IDENTIFICATION  |   |   |
|--|---|---|
| COMPOSITION<br><b>Er</b>   |   | PRODUCT NAME<br><b>Erbium</b>   |
| SUPPLIER:<br><b>Plasmaterials, Inc.<br/>2268 Research Drive<br/>Livermore, CA 94550<br/>Ph: 925-447-4030</b> | RECOMMENDED USE:<br><b>Laboratory Chemicals<br/>Scientific Research</b> | EMERGENCY TELEPHONE NUMBERS<br><b>US: 001-800-424-9300<br/>Europe: 001-703-527-3887</b> |

| Section 2- HAZARD(S) IDENTIFICATION  |  |
|--|--|
| <b>Physical Hazards:</b> Not Classified  | <b>Environmental Hazards:</b> Not Classified |
| <b>Health Hazards:</b> Not Classified  | <b>OSHA Defined Hazards:</b> Not Classified  |
| <b>LABEL ELEMENTS:</b>   |  |
| <b>Hazard Symbol:</b> None   | <b>Signal Word:</b> None                     |
| <p style="text-align: center;"><b>HAZARD STATEMENTS</b></p> <p>-This material does not meet the criteria for classification.</p> <p style="text-align: center;"><b>PRECAUTIONARY STATEMENTS</b></p> <p>- Observe good industrial hygiene practices.<br/>           -P264: Wash face, hands, and any exposed skin thoroughly after handling<br/>           -P280: Wear protective gloves/protective clothing/eye protection/face protection<br/>           -P420: Store away from incompatible material.<br/>           -P501: Dispose of contents/container in accordance with local/regional/national/international regulations</p> <p><b>Hazards not otherwise classified (HNOC):</b><br/>           -None identified.</p> |  |

| Section 3- COMPOSITION/INFORMATION ON INGREDIENTS |                  |                         |
|---|------------------|-------------------------|
| <b>COMPONENT</b>                                  | <b>CAS-No</b>    | <b>Molecular Weight</b> |
| <b>Erbium</b>                                     | <b>7440-52-0</b> | <b>167.2590 g/mol</b>   |

| Section 4- FIRST AID MEASURES  |
|--|
| <p><b>GENERAL ADVICE:</b> If exposed or concerned: get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.</p> <p><b>INHALATION:</b> Remove victim from exposure to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if symptoms develop and/or persist.</p> <p><b>SKIN CONTACT:</b> Wash off with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention if irritation develops and/or persists.</p> <p><b>EYE CONTACT:</b> 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. Obtain medical attention if irritation develops and/or persists.</p> <p><b>INGESTION:</b> Rinse with water. Call a doctor/physician if symptoms occur.</p> <p><b>MOST IMPORTANT SYMPTOMS/EFFECTS:</b> Direct contact with eyes may cause temporary irritation.</p> <p><b>INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED:</b> Treat symptomatically.</p> |

## Section 5- FIREFIGHTING MEASURES

### Suitable Extinguishing Media:

Water Fog, Dry Chemical Powder, Carbon Dioxide (CO<sub>2</sub>) or Alcohol-Resistant Foam

### Unsuitable Extinguishing Media:

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

**Specific Hazards Arising from the Chemical:** During fire, gases hazardous to health may be formed.

**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. Use water spray to cool unopened containers.

**General Fire Hazards:** No unusual fire or explosion hazards noted.

## Section 6- ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. For personal protection see section 8.

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

**Methods for Containment & Clean Up:** Stop the flow of material if this is without risk. Following product recovery flush area with water. For waste disposal see Section 13 of SDS.

## Section 7- HANDLING AND STORAGE

**Handling:** Wear protective gloves/protective clothing/eye protection/face protection. Observe good industrial hygiene practices.

**Storage:** Store in original tightly closed container. Store away from incompatible materials. (see Section 10 of SDS)

## Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

### Exposure Guidelines:

**Occupational Exposure Limits:** No PEL, TLV, or other recommended exposure limit values noted for substance

**Biological Limit Values:** No biological exposure limits noted for the substance

**Appropriate Engineering Controls:** Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday. When using do not smoke, eat, or drink. Keep away from food and drink. Wash thoroughly after handling and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

### Personal Protective Equipment:

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

**Skin and Body Protection:** Handle with chemical resistant 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. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** In case of insufficient ventilation, wear suitable respiratory equipment. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

**Thermal Hazards:** Wear appropriate thermal protective clothing when necessary.

## 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:** 1529°C (2784°F)  
**Boiling Point/Range:** 2868°C (5194°F)  
**Flash Point:** No information available  
**Evaporation Rate:** No information available  
**Flammability (solid,gas):** No information available  
**Flammability or Explosive Limits:**  
    **Upper:** No data available  
    **Lower:** No data available  
**Vapor Pressure:** No information available  
**Vapor Density:** No information available  
**Relative Density:** 9.066 g/cm<sup>3</sup>  
**Solubility (Water):** No information available  
**Partition coefficient; n-octanol/water:** No data 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:** Stable and non-reactive under normal conditions of use, storage, and transport.  
**Stability:** Stable under normal conditions.  
**Conditions to Avoid:** Contact with incompatible materials.  
**Incompatible Materials:** Strong oxidizing agents  
**Hazardous Decomposition Products:** No information available  
**Hazardous Reactions:** No information available

## Section 11- TOXICOLOGICAL INFORMATION

**Information on likely Routes of Exposure:**  
    **Inhalation:** No information available  
    **Skin Contact:** No information available  
    **Eye Contact:** Direct contact with eyes may cause temporary irritation  
    **Ingestion:** Expected to be a low ingestion hazard  
**Symptoms Related to the Physical, Chemical & Toxicological Characteristics:** Direct contact with eyes may cause temporary irritation.  
**Information on Toxicological Effects:**  
    **Acute Toxicity:** No information available  
    **Skin Corrosion/Irritation:** Prolonged skin contact may cause temporary irritation  
    **Serious Eye Damage/Eye Irritation:** Direct contact with eyes may cause temporary irritation  
    **Respiratory Sensitization:** Not a respiratory sensitization  
    **Skin Sensitization:** Not expected to cause skin sensitization  
    **Carcinogenicity:** This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.  
    **Germ Cell Mutagenicity:** No information available  
    **Reproductive Toxicity:** 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:** Not an aspiration hazard  
**Chronic Effects:** No data available  
**-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.**

## Section 12- ECOLOGICAL INFORMATION

**Ecotoxicity:** 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.  
**Persistence and Degradability:** No information available  
**Bioaccumulation/Accumulation:** No information available  
**Mobility:** No information available  
**Other Adverse Effects:** No other adverse environmental effects are expected from this component.

## Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Collect and reclaim or dispose in sealed containers to a licensed waste disposal site. Dispose of contaminated packaging as unused product. Dispose of contents/container in accordance with local/regional/national/international 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:** All components are on the US EPA TSCA Inventory List. 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  
**CERCLA Hazardous Substance List (40 CFR 302.4):** Not Listed  
**SARA Hazard Categories:**  
**Immediate Hazard:** No  
**Delayed Hazard:** No  
**Fire Hazard:** No  
**Pressure Hazard:** No  
**Reactive Hazard:** No  
**SARA 302 Extremely Hazardous Substance:** No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302  
**SARA 304 Emergency Release Notification:** Not regulated  
**SARA 311/312 Hazardous Chemical:** No  
**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  
**Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List:** Not regulated  
**Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130):** Not regulated  
**Safe Drinking Water Act (SDWA):** Not regulated  
**US California Proposition 65:** This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.  
**US Massachusetts Right to Know Components:** Not listed  
**US New Jersey Right To Know Substances:** Erbium (CAS 7440-52-0)  
**US Pennsylvania Right To Know – Hazardous Substances:** Erbium (CAS 7440-52-0)

## **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.

The information in this SDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

REVISION: 08-13-2019