

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Erbium Metal
Synonyms	Enriched Erbium
Chemical Formula	Er
Molecular Weight:	167.26 g/mol
CAS No.	7440-52-0
EINECS No.	N/A
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco, CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview:

OSHA HAZARDS	Flammable solid
GHS CLASSIFICATION	Flammable solids (Category 2)

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 3



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Physical Hazard = 3

HEALTH HAZARD	0
FLAMMABILITY	0
PHYSICAL HAZARD	3
PERSONAL PROTECTION	

Potential Health Effects

<i>Inhalation</i>	May be harmful if inhaled. May cause respiratory tract irritation.
<i>Skin</i>	May be harmful if absorbed through skin. May cause skin irritation.
<i>Eyes</i>	May cause eye irritation
<i>Ingestion</i>	May be harmful if swallowed
<i>Prevention</i>	Wash thoroughly after handling. Wear protective gloves, clothing, eye protection and face protection.
<i>Response If in Eyes</i>	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue to rinse. If eye irritation persists, seek medical advice.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Chemical Name:	Erbium Metal
CAS Number:	7440-52-0
Chemical Formula:	Er
Molecular Weight:	167.26 g/mol
No ingredients are hazardous according to OSHA criteria.	

4. FIRST AID MEASURES

<i>General Advice</i>	Consult a physician. Show this safety data sheet to the physician in attendance. Move the patient out of any dangerous area.
<i>Inhalation</i>	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.
<i>Skin Contact</i>	Wash immediately with water and soap; rinse thoroughly. Seek immediate medical advice.
<i>Eye Contact</i>	Rinse opened eye for several minutes under running water; consult a doctor.
<i>Swallowing</i>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

5. FIREFIGHTING MEASURES

<i>Suitable Extinguishing Media</i>	Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.
<i>Special Protective Equipment for Firefighters</i>	Wear self-contained breathing apparatus for firefighting if necessary.

Hazardous Combustion Products

Hazardous decomposition products formed under fire conditions:
Erbium oxides

Further Information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Measures for Cleaning Up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing; place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Handling

Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition. NO SMOKING. Take measures to prevent a buildup of electrostatic charge.

Storage

Store in cool place. Keep container tightly closed in a dry, well-ventilated place. Store under inert gas. Air- and moisture-sensitive.

8. EXPOSURE, CONTROLS, PERSONAL PROTECTION

Exposure Guidelines

Contains no substances with occupational exposure limit values.

Personal Protective Equipment

Respiratory Protection

Where risk assessment shows air-purifying respirators are appropriate, use a full-face particle respirator type N100 (US) or type P3 (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).

Hand 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.

Eye Protection

Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and Body Protection

Flame-retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene Measures

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Powder
Color	Dark gray
Odor	Odorless

Safety Data

Molecular Weight:	167.26 g/mol	pH:	N/A
BP/BP Range:	2868 °C	MP/MP Range:	1529 °C
Freezing Point:	N/A	Vapor Pressure:	N/A
Vapor Density:	N/A	Saturated Vapor Concentration:	N/A
SG/Density:	9.062 g/mL at 25 °C	Bulk Density:	N/A
Odor Threshold:	N/A	Volatile %:	N/A
VOC Content:	N/A	Water Content:	N/A
Solvent Content:	N/A	Evaporation Rate:	N/A
Viscosity:	N/A	Surface Tension:	N/A
Partition Coefficient:	N/A	Decomposition Temperature:	N/A
Flash Point:	N/A	Explosion Limits:	N/A
Flammability:	N/A	Autoignition Temperature:	N/A
Optical Rotation:	N/A	Solubility in Water:	Insoluble
Refractive Index:	N/A	Miscellaneous Data:	N/A

10. STABILITY AND REACTIVITY

<i>Stability</i>	Stable under recommended storage conditions
<i>Possibility of Hazardous Reactions</i>	No data available
<i>Conditions to Avoid</i>	Heat, flames, sparks, extremes of temperature, direct sunlight
<i>Materials to Avoid</i>	Strong acids, strong oxidizing agents, halogens
<i>Hazardous Decomposition Products</i>	Hazardous decomposition products formed under fire conditions: Erbium oxides. Other decomposition products: No data available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<i>Oral LD50</i>	No data available
<i>Inhalation LC50</i>	No data available
<i>Dermal LD50</i>	No data available
<i>Other Information</i>	No data available
<i>Skin Irritation</i>	No data available
<i>Serious Eye Irritation</i>	No data available
<i>Respiratory or Skin Sensitization</i>	No data available
<i>Germ Cell Mutagenicity</i>	No data available

Carcinogenicity

<i>IARC</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.
<i>ACGIH</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<i>NTP</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<i>OSHA</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<i>Reproductive Toxicity</i>	No data available
<i>Teratogenicity</i>	No data available
<i>Specific Target Organ Toxicity / Single Exposure (Globally Harmonized System)</i>	No data available
<i>Specific Target Organ Toxicity / Repeated Exposure (Globally Harmonized System)</i>	No data available
<i>Aspiration Hazard</i>	No data available

Potential Health Effects

<i>Inhalation</i>	May be harmful if inhaled. May cause respiratory tract irritation.
<i>Ingestion</i>	May be harmful if swallowed.
<i>Skin</i>	May be harmful if absorbed through skin. May cause skin irritation.
<i>Eyes</i>	May cause eye irritation.
<i>Synergistic Effects</i>	No data available
<i>Additional Information</i>	RTECS: Not available

12. ECOLOGICAL INFORMATION

<i>Toxicity</i>	No data available
<i>Persistence and Degradability</i>	No data available
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>PBT and vPvB Assessment</i>	No data available
<i>Other Adverse Effects</i>	No data available

13. DISPOSAL CONSIDERATIONS

<i>Product</i>	Burn in a chemical incinerator equipped with an afterburner and scrubber, but exert extra care in igniting, as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.
<i>Contaminated Packaging</i>	Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

Proper Shipping Name	Metal powder, flammable, n.o.s.
UN Number	3089
Class	4.1
Packing Group	II
Marine Pollutant	No
Poison Inhalation Hazard	No

IMDG

Proper Shipping Name	Metal powder, flammable, n.o.s.
UN Number	3089
Class	4.1
Packing Group	II
EMS No.	F-G, S-G
Marine Pollutant	No

IATA

Proper Shipping Name	Metal powder, flammable, n.o.s.
UN Number	3089
Class	4.1
Packing Group	II

15. REGULATORY INFORMATION

OSHA Hazards Flammable solid

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

SARA 313 Components 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 Fire Hazard

Massachusetts Right to Know Components No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right to Know Components Erbium powder / CAS No.: 7440-52-0

New Jersey Right to Know Components Erbium powder / CAS-No.: 7440-52-0

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

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
<i>Issuing Date</i>	November 10, 2014
<i>Revision Date</i>	April 23, 2024
<i>Revision Number</i>	3
<i>Revision Note</i>	Update Supplier Address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)

NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

General Disclaimer

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between ISOFLEX USA (or any of its affiliates and subsidiaries) and the purchaser.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein, and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. ISOFLEX shall not be held liable for any damage resulting from handling or from contact with the above product.