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SAFETY DATA SHEET

Section 1. Identification

Product Name: Erbium(III) oxide
Product Type: Solid
CAS Number: 12061-16-4
Product Number: ER1164
Recommended Use: Laboratory chemicals, synthesis of substances.
Product Manufacturer: Ereztech LLC
11555 Medlock Bridge Road, Suite 100
Johns Creek, GA 30097

Product Information: (888) 658-1221
In Case of an Emergency: CHEMTREC: 1-800-424-9300 (USA);
+1 703-527-3887 (International); CCN836180
*** Contact manufacturer for all non-emergency calls.

Section 2. Hazards Identification

Appearance/Odor: Rose-pink solid (powder), odor not determined.
Classification: HAZARDOUS TO THE AQUATIC ENVIRONMENT, ACUTE HAZARD – Category 1, H400
HAZARDOUS TO THE AQUATIC ENVIRONMENT, LONG-TERM HAZARD – Category 1, H410

GHS Label Elements
Hazard Pictograms:

Signal Word: WARNING
Hazard Statements: H400: Very toxic to aquatic life.
H410: Very toxic to aquatic life with long lasting effects.

Precautionary Statements
Prevention: P273: Avoid release to the environment.
Response: P391: Collect spillage.
Storage: No applicable statements.
Disposal: P501: Dispose of contents/container in accordance with federal, state and local regulations.

Section 2. Hazards Identification

OSHA/HCS Status: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified (HNOC): None identified.

Section 3. Composition/Information on Ingredients

Substance Type: Mono-constituent.
Synonyms: Erbia; Erbium trioxide; Dierbium trioxide.
Formula: Er_2O_3
Molecular Weight: 382.56 g/mol.
ER-No. : 235-045-7

Component Name	%	CAS Number
Erbium(III) oxide	≥ 99	12061-16-4

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First Aid Measures

Description of Necessary First Aid Measures

General Advice: Move out of dangerous area. If unconscious, place in recovery position and get medical help immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If irritation or symptoms develop and persist, get medical help. Show this safety data sheet to the doctor in attendance.

Eye Contact: As a precaution, immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses after initial rinse period and continue rinsing for an additional 15 minutes. Keep eyes wide open during rinsing process. If irritation develops and persist, get medical help.

Skin Contact: Remove all contaminated clothing and shoes. Wash off contaminated skin with plenty of water. If irritation develops and persist, get medical help.

Inhalation: Remove person to fresh air and keep comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If symptoms develop and persist, get medical help.

Section 4. First Aid Measures

Ingestion: Rinse mouth with water. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If symptoms develop and persist, get medical help.

Most Important Symptoms/Effects, Acute and Delayed Potential Acute Health Effects

Eye Contact: Symptoms may include stinging, tearing, redness, swelling and blurred vision.

Inhalation: The acute effects of inhalation of this product have not been determined.

Skin Contact: The acute effects of dermal contact of this product have not been determined.

Ingestion: The acute effects of ingestion of this product have not been determined.

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary

Notes to Physician: Treat symptomatically.

Specific Treatments: No specific treatment.

Protection of First Responders: No action taken shall be taken involving any personal risk without suitable training.

See Toxicological Information (Section 11)

Section 5. Fire Fighting Measures

General Hazards: None identified.

Suitable Extinguishing Media: Use water spray (fog), dry chemical or appropriate foam.

Unsuitable Extinguishing Media: Carbon dioxide (CO_2).

Unusual Fire and Explosion Hazards: None identified.

Product of Combustion: Erbium oxides.

Protection of Firefighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Avoid contact with skin or eyes. Avoid the formation and inhalation of dusts and aerosols.

Fire-fighters should wear appropriate protection equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in a positive pressure mode.

Additional Information: Prevent fire extinguishing water from contaminating surface waters or ground water systems.

Section 6. Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

For Non-Emergency Personnel: No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid the formation and inhalation of dusts and aerosols. Provide adequate ventilation. Wear respiratory protection. Put on appropriate personal protective equipment.

For Emergency Responders: If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For Non-Emergency Personnel".

Environmental Precautions: Do not allow dispersal of spilled material and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods for Containment

General: Stop leak/spillage and move containers from spill area if safe to do so. Avoid the formation and inhalation of dusts and aerosols. Dispose of collected spillage in accordance with federal, state and local regulations (see Section 13). Contaminated binding material may pose the same hazard as the spilled product.

Small Spill: Collect spillage with a dry binding material (e.g. dry sand, vermiculite or diatomaceous earth) and place in a dry, sealed container for disposal.

Large Spill: Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Contain and collect spillage with a dry binding material (e.g. dry sand, vermiculite or diatomaceous earth) and place in dry, sealed container for disposal.

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and Storage

Precautions: Product is hygroscopic and air sensitive; handle under a dry, inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Avoid the formation and inhalation of dusts and aerosols. Avoid contact with skin, eyes and clothing. Do not ingest. Ensure adequate ventilation.

Section 7. Handling and Storage

Protective Measures: Put on appropriate personal protective equipment (see Section 8). Keep in the original container kept tightly closed when not in use.

General Occupational Hygiene: Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Safe Storage Conditions: Product is hygroscopic and air sensitive; handle under a dry, inert gas. Nitrogen with less than 5 ppm each of moisture and oxygen is recommended. Store in original container protected from direct sunlight in a cool well-ventilated area, away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Section 8. Exposure Controls/Personal Protection

Introductory Remarks: These recommendations provide general guidance for handling this product. Because work environments and material handling practices vary, safety procedures should be developed for each intended application. While developing safe handling procedures, do not overlook the need to clean equipment and conduct regular repairs. Waste from these procedures should be handled in accordance with Section 13.

Occupational Exposure Limits: Product contains no substances with occupational exposure limit values.

Engineering Controls: Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute. Provide an eyewash/shower station.

Environmental Exposure Controls: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual Protection Measures

Hygiene Measures: Avoid all unnecessary exposure.

Section 8. Exposure Controls/Personal Protection

Hygiene Measures (cont.): Wash all exposed skin (hands, forearms and face) thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Remove all soiled and contaminated clothing immediately. Do not inhale dusts or aerosols. Avoid contact with eyes and skin. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/Face Protection: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to dusts and aerosols. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles, faceshield (8-inch minimum). Refer to 29 CFR 1910.133, ANSI Z87.1, or European Standard EN166.

Skin Protection

Hand Protection: Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: 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. For full contact, use Neoprene or nitrile rubber.

Other Skin Protection: Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory Protection: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.

Section 8. Exposure Controls/Personal Protection

Respiratory Protection (cont.): 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).

Section 9. Physical and Chemical Properties

Physical State:	Solid (powder).
Color:	Rose-pink.
Odor:	No data available.
Odor Threshold:	No data available.
Melting Point:	2344 °C (4251.2 °F).
Boiling Point:	3920 °C (7088 °F) @ 1013 hPa.
Flash Point:	Not applicable.
Flammability:	Not applicable.
Auto-ignition temperature:	No data available.
Density:	8.64 g/cm^3 @ 25 °C.
Vapor Pressure:	No data available.
Vapor Density:	No data available.
Water Solubility:	0.004 g/l @ 29 °C.

Section 10. Stability and Reactivity

Reactivity:	Product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	Product is stable at normal ambient temperature and pressure and under recommended storage conditions.
Conditions to Avoid:	Exposure to air/water/moisture.
Incompatible Materials:	Strong oxidizing agents, carbon dioxide (CO_2).
Hazardous Decomposition Products:	Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products formed under fire conditions: erbium oxide fumes. In the event of a fire: see Section 5.
Possibility of Hazardous Reactions:	Under normal conditions of storage and use noted above, hazardous reactions will not occur. Hazardous reactions or instability may occur under certain conditions of storage or use.

Section 11. Toxicological Information

Information on Toxicological Effects

Acute Toxicity:

Component	CAS No	Result	Species	Dose	Exposure
Erbium(III) oxide	12061-16-4	LD50 Oral	Rat	> 5,000 mg/kg	-

Irritation/Corrosion: No specific data available.

Sensitization: No specific data available.

Germ Cell Mutagenicity: No specific data available.

Carcinogenicity

ACGIH No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by ACGIH.

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

NTP No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by NTP.

OSHA No component of this product present at levels greater than 0.1% is identified as probable, possible or confirmed human carcinogen by OSHA.

Reproductive Toxicity: No specific data available.

Teratogenicity: No specific data available.

Specific Target Organ Toxicity: (Single Exposure) No specific data available.

Specific Target Organ Toxicity: (Repeated Exposure) No specific data available.

Aspiration Hazard: No specific data available.

Information on the Likely Routes of Exposure: Common routes of exposure: inhalation (failure to prevent dust formation), dermal (failure to use skin protection), eye (failure to use safety eyewear). Less common: ingestion (failure to employ recommended hygiene measures (e.g. smoking after handling product without washing hands or using hand protection).

Additional Information: To the best of our knowledge, the chemical, physical and toxicological properties of this product have not been thoroughly investigated.

Section 12. Ecological Information

Ecotoxicity: Product is very toxic to aquatic organisms and may cause long-term adverse effects in the aquatic environment.

Numerical Measures of Toxicity: No specific data available.

Persistence and Degradability

Biodegradability: The methods for determining the biological degradability are not applicable to inorganic substances.

Bioaccumulative Potential: No specific data available.

Mobility in Soil: No specific data available.

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

Endocrine Disrupting Properties: No specific data available.

Other Adverse Effects: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Section 13. Disposal Considerations

Waste Treatment Methods

Product: Dispose of in accordance with local, state, and federal regulations. Refer to 40 CFR 260-299 for complete waste disposal regulations. Consult your local, state, or federal agency before disposing of any chemicals.

Contaminated Packaging: Empty containers retain product residue (dusts, aerosols, vapors and gases) and can be dangerous. Dispose of as unused product.

Section 14. Transport Information

	DOT	IMDG	IATA
UN Number	UN3077	UN3077	UN3077
UN Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s. (Erbium oxide)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Erbium oxide)	Environmentally hazardous substance, solid, n.o.s. (Erbium oxide)
Transport Hazard Classes	9	9	9
Packing Group	III	III	III
Environmental Hazards	Yes	Yes	Yes
Additional Information	-	EMS-No: S-A	-

Special Precautions for User: Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Section 15. Regulatory Information

TSCA (Toxic Substance Control Act):
This product is listed as "Active" on the U.S. Toxic Substances Control Act Chemical Inventory (TSCA Inventory).

This product as supplied is not subject to the TSCA Significant New Use Rule.

This product as supplied is not subject to TSCA 12(b) export notification requirements.

SARA 302 Components
This product does not contain any components which are subject to the reporting requirements of SARA Title III, Section 302 EHS TPQ.

SARA 304 Components
This product does not contain any components which are subject to the reporting requirements of SARA Title III, Section 304 RQ.

SARA 311/312 Hazards
No SARA hazards are listed for this product as supplied.

SARA 313 Components
This product 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 Water Act
Not applicable.

Section 15. Regulatory Information

Clean Air Act
Not applicable.

CERCLA Reportable Quantity
This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US Department of Homeland Security (DHS)
This product does not contain any DHS chemicals.

US Department of Transportation (DOT)

Component	Reportable Quantity	DOT Marine Pollutant	DOT Severe Marine Pollutant
Erbium(III) oxide	-	No	No

US State Right-to-Know Listings

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Erbium(III) oxide	-	-	-	-	-

"X" – Listed.

US State Chemicals of High Concern Listings

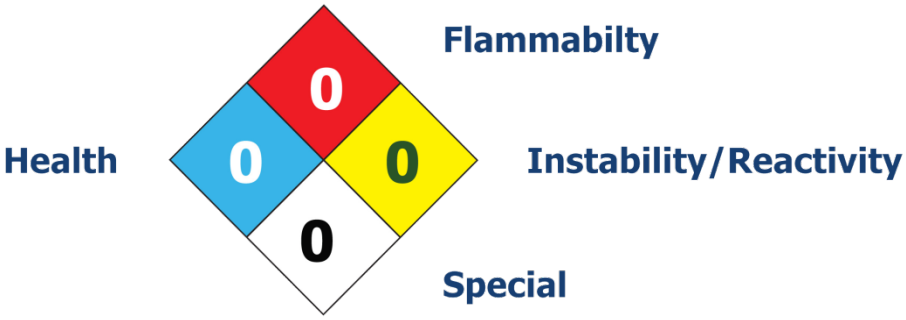
Component	Maine	Vermont	Washington
Erbium(III) oxide	-	-	-

"X" – Listed.

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

Section 16. Other Information

National Fire Protection Association (U.S.A.)



Section 16. Other Information

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

HMIS Rating

HEALTH	**0**
FLAMMABILITY	**0**
PHYSICAL HAZARD	**0**

History

Date of Issue/Date of Revision: 4/10/2025.

Date of Previous Issue: None.

References: None available.

Abbreviations and Acronyms

ACGIH	:	American Conference of Governmental Industrial Hygienists.
AIHA	:	American Industrial Hygiene Association.
ATE	:	Acute Toxicity Estimate (per Chapter 3.1 of GHS 10 standard).
BEI	:	Biological Exposure Indices (ACGIH).
CAS	:	Chemical Abstracts Service (division of the American Chemical Society).
CHRIS	:	Chemical Hazards Response Information System (US DOT).
CLP	:	Classification, Labeling and Packaging (European Union (EU)).
DOT	:	US Department of Transportation.
EC-No.	:	The EC Inventory (EINECS, ELINCS and the NLP-list is the source of the seven digit EC number, an identifier of substances commercially available with the EU (European Union).
EINECS	:	European Inventory of Existing Commercial Chemical Substances.
EHS	:	Extremely Hazardous Substance.
ELINCS	:	European List of Notified Chemical Substances.
GHS	:	Globally Harmonized System of Classification and Labeling of Chemicals.
HAP	:	Hazardous Air Pollutants (Clean Air Act).
HMIS	:	Hazardous Materials Identification System.
HNOC	:	Hazards Not Otherwise Classified.
IARC	:	International Agency for Research on Cancer.
IATA	:	International Air Transport Association.
IATA-DGR	:	Dangerous Goods Regulations by the "International Air Transport Association" (IATA).

Section 16. Other Information

Abbreviations and Acronyms (cont.)

IDLH	:	Immediately Dangerous to Life or Health (US National Institute for Occupation Health and Safety (NIOSH)).
IMDG	:	International Maritime Code for Dangerous Goods.
IP	:	Intraperitoneal.
IV	:	Intravenous.
NFPA	:	National Fire Protection Association.
NIOSH	:	National Institute of Occupational Safety and Health.
NSRL	:	No Significant Risk Levels.
NTP	:	National Toxicology Program.
ODS	:	Ozone Depleting Substances (US Clean Air Act).
OECD	:	Organization for Economic Co-Operation and Development.
OEL	:	Occupational Exposure Limit.
OSHA	:	Occupational Safety and Health Administration.
PBT	:	Persistent Bioaccumulative and Toxic.
PEL	:	Permissible Exposure Limits.
REL	:	Recommended Exposure Limits.
RQ	:	Reportable Quantity.
SARA	:	Superfund Amendments and Reauthorization Act.
STEL (ST)	:	Short Term Exposure Limit (ACGIH/NIOSH)
STOT	:	Specific Target Organ Toxicity.
TLV	:	Threshold Limit Values (ACGIH).
TPQ	:	Threshold Planning Quantity.
TWA	:	Time Weighted Average.
VOC	:	Volatile Organic Compound.
vPvB	:	Very Persistent and Very Bioaccumulative.
WEEL	:	Workplace Environmental Exposure Level (AIHA).

Disclaimer

The information herein is believed to be accurate and is presented in good faith; however, no warranties or representations are made by Ereztech LLC regarding the accuracy or completeness of the information. Ereztech LLC shall not be liable for any damages resulting from the handling, or from the contact with the above product.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.