

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Europium Metal
General Name	Europia
Chemical Family	Lanthanide
Chemical Formula	Eu
Molecular Weight	151.964 amu (naturally occurring)
CAS No.	7440-53-1
EC No.	231-161-7
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

GHS Classification (29 CFR 1910.1200): Flammable solids, category 1, substance and mixtures which, in contact with water, emit flammable gases, category 3.

GHS Label Elements:



Signal Word: Danger

Hazard Statements: H228 Flammable solid. H250 Catches fire spontaneously if exposed to air. H261 In contact with water releases flammable gas.

Precautionary Statements: P210 Keep away from heat/sparks/open flames - No smoking. P222 Do not allow contact with air. P231+P232 Handle under inert gas. Protect from moisture. P280 Wear protective gloves/protective clothing/eye protection/face protection. P370+P378 In case of fire: Use Class D dry

extinguishing agent for extinction, do not use water. P402+P404 Store in a dry place. Store in a closed container. P422 Store contents under inert gas. P501 Dispose of contents/container in accordance with local, state or federal regulations.

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

Health Hazard = 1 Flammability = 3 Instability = 1



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

Health Hazard = 1 Flammability = 3 Reactivity = 2

HEALTH HAZARD	1
FLAMMABILITY	3
REACTIVITY	2

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name: Europium Metal
Chemical Formula: Eu
Molecular Weight: 151.964 amu
CAS No.: 7440-53-1
EC No.: 231-161-7
Active Ingredient: Europium Metal

4. FIRST-AID MEASURES

Eyes Rinse opened eye for several minutes under running water. Consult a physician.

Skin Immediately wash with soap and water; rinse thoroughly. Seek immediate medical advice.

Inhalation Supply patient with fresh air. If not breathing, provide artificial respiration. Keep patient warm. Seek immediate medical advice.

Ingestion Seek medical treatment.

5. FIREFIGHTING MEASURES

Firefighting Instructions As in any fire, wear a self-contained respirator in pressure-demand, MSHA/NIOSH (approved or equivalent), and fully protective impervious suit. Isolate immediate hazard area, keep unauthorized personnel out. Contain spill if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk.

Suitable Extinguishing Media In case of fire, use sand, carbon dioxide or Class D powdered extinguishing agent. Never use water.

Unsuitable Extinguishing Agents Water

<i>Special Hazards</i>	Reacts violently with water. Spontaneously flammable in air. If this product is involved in a fire, the following can be released: Europium oxide.
<i>Autoignition Temperature</i>	Not available
<i>Flash Point</i>	Not available
<i>OSHA Flammability Class</i>	Not available
<i>LEL/UEL</i>	Not available
<i>Burn Rate (Solids)</i>	Not available
<i>Explosion limits (Lower/Upper)</i>	Not available

6. ACCIDENTAL RELEASE MEASURES

<i>Evacuation Procedures and Safety</i>	Use personal protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources.
<i>Containment of Spill</i>	Spill should be contained if it can be done without risk.
<i>Methods for Cleaning Up</i>	Ensure adequate ventilation. Do not flush with water or aqueous cleansing agents. Do not dispose of spill by dumping into public sewer or any other unauthorized waste treatment system. Spill should be swept up and properly prepared for disposal.
<i>Prevention of Secondary Hazards:</i>	Keep away from ignition sources.
<i>Environment and Regulatory Reporting</i>	Should spilled material enter an unauthorized waste treatment system, contact the local authorities.
<i>Reference to other sections</i>	See Section 7 for information on safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

7. HANDLING AND STORAGE

<i>Handling</i>	Precautions for safe handling: Handle under dry protective gas. Keep container tightly sealed.
<i>Storage</i>	Store in a cool, dry place in tightly closed container. Protect container against physical damage. Ensure good ventilation at the workplace. Store away from air. Store away from water/moisture. Do not store together with acids. Store away from oxidizing agents. Store away from halogens. Store away from acid chlorides. Store under dry inert gas. Product is moisture-sensitive. Product is air-sensitive. Protect from humidity and water.
<i>Protection Against Explosions and Fires</i>	Protect against electrostatic charges. Product is self-ignitable.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<i>Design of Technical Systems</i>	Properly operating chemical fume hood designed for hazardous chemicals and having an average velocity of at least 100 feet per minute.
<i>Control Parameters</i>	Components with limit values that require monitoring at the workplace: none.
<i>Ingestion</i>	Keep product away from foodstuffs, beverages and feed.
<i>Eye Contact</i>	To avoid eye contact, wear safety glasses with side shields or chemical goggles.

<i>Skin Contact</i>	To avoid skin contact, wear impervious gloves, boots, long-sleeved shirts, long pants and head covering.
<i>Respiratory Protection</i>	To avoid inhalation wear dust mask or self-contained respiratory device with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls.
<i>Other Protective Equipment</i>	A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

<i>Form</i>	Solid
<i>Color</i>	Grey
<i>Odor</i>	None

Safety Data

pH:	Not available
Specific Gravity:	5.25 g/cm ³
Density at 20 °C (68 °F):	5.244 g/cm ³ (43.761 lbs/gal)
Vapor Density:	Not available
Vapor Pressure (mm Hg):	No data
Solubility in Water:	Reacts violently
Melting Point:	822 °C (1512 °F)
Boiling Point:	1596 °C (2905 °F)
Molecular Formula:	Eu
Molecular Weight:	151.964 amu
Flammability:	Flammable solid
Autoignition Temperature:	No data
Decomposition Temperature:	No data

10. STABILITY AND REACTIVITY

<i>Reactivity</i>	No specific test data available
<i>Chemical Stability</i>	Stable under recommended storage conditions.
<i>Possibility of Hazardous Reactions</i>	Flammable when exposed to heat, spark or flame. May react with acids or water to release flammable hydrogen gas
<i>Conditions to Avoid</i>	Contact with air or moisture, ignition sources.
<i>Incompatibilities with Other Materials</i>	Water/moisture, air, strong acids, acid chlorides, strong oxidizing agents, halogens
<i>Hazardous Decomposition Products</i>	Europium oxides, europium hydroxides, hydrogen gas
<i>Hazardous Polymerization</i>	No data

11. TOXICOLOGICAL INFORMATION

<i>Likely Routes of Exposure</i>	Inhalation, skin, eyes
<i>Eye</i>	Irritant effect
<i>Abraded Skin</i>	Irritant effect

Acute and Chronic Effects

Europium Compounds: In an animal study, europium oxide was not found to be acutely toxic (LD50 > 5000 mg/kg), showed no signs of dermal irritation, and was mildly irritating to eyes. In a subchronic toxicity study with rats via oral route, the NOAEL for europium chloride was determined to be 200 mg/kg/day.

Acute Toxicity	No data
Reproductive Toxicity	No effects known
Specific Target Organ Toxicity	No effects known (single or repeated exposure)
Carcinogenicity	Not listed by ACGIH, IARC or NTP as carcinogenic.
Germ Cell Mutagenicity	No effects known

12. ECOLOGICAL INFORMATION

<i>Eco-acute Toxicity</i>	Acute toxicity is considered unlikely because of the existence of similar compounds in nature.
<i>Environmental Fate</i>	Not applicable
<i>Persistence and Degradability</i>	No data
<i>Bioaccumulative Potential</i>	No data
<i>Mobility in Soil</i>	No data
<i>Other Adverse Effects</i>	Do not allow material to be released to the environment. No further relevant information available.

13. DISPOSAL CONSIDERATIONS

<i>Product</i>	Along with properly characterizing all waste materials, consult federal, state and local regulations regarding the proper disposal of this material.
<i>Contaminated Packaging</i>	Along with properly characterizing all waste materials, consult federal, state and local regulations regarding the proper disposal of this material.

14. TRANSPORT INFORMATION

DOT

<i>Proper Shipping Name</i>	Metallic substance, water-reactive, n.o.s. (Europium)
<i>Transport Hazard Class</i>	4.3 (W2) Substances which, in contact with water, emit flammable gases
<i>UN No.</i>	UN3208
<i>Packing Group</i>	II
<i>Special Information</i>	Warning: Substances which, in contact with water, emit flammable gases.
<i>Special Precautions for User</i>	Warning: Substances which, in contact with water, emit flammable gases.
<i>EMS No.</i>	F-G,S-N
<i>Marine Pollutant</i>	No

IMDG/IATA

<i>Proper Shipping Name</i>	METALLIC SUBSTANCE, WATER-REACTIVE, N.O.S. (Europium)
<i>Transport Hazard Class</i>	4.3 Substances which, in contact with water, emit flammable gases
<i>UN No.</i>	UN3208
<i>Packing Group</i>	II
<i>Special Information</i>	Warning: Substances which, in contact with water, emit flammable gases.
<i>Special Precautions for User</i>	Warning: Substances which, in contact with water, emit flammable gases.

Contact ISOFLEX for any other transportation information.

15. REGULATORY INFORMATION

TSCA	All components of this product are listed in the US Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.
NDSL	All components of this product are listed on the Canadian Non-Domestic Substances List (NDSL)
SARA 313 Components	Substance is not listed.
California Prop. 65 Components	Substance is not listed in the following categories: Chemicals known to cause cancer, Developmental toxicity (female), Developmental toxicity (male), Developmental toxicity.
Chemical Safety Assessment	A Chemical Safety Assessment has not been carried out.
REACH	Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006 (REACH): Substance is not listed. The conditions of restrictions for the manufacturing, placing on the market and use must be observed: Substance is not listed. Annex XIV of the REACH Regulations (requiring authorisation for use): Substance is not listed.

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
<i>Issuing Date</i>	January 12, 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	Wassergefährungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

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

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