

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Rhenium
Chemical Formula	Re
Molecular Weight	186.21 g/mol
CAS No.	7440-15-5
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:

Hazardous Component:	Rhenium
Percent (%):	0-100
OSHA/PEL:	N/E
ACGIH/TLV:	N/E
OSHA Hazards:	Flammable solid

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

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

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Rhenium
CAS No.	7440-15-5
Chemical Formula:	Re
Molecular Weight:	186.21 g/mol

4. FIRST AID MEASURES

<i>Effects of Exposure</i>	To the best of our knowledge the chemical, physical and toxicological properties of rhenium have not been thoroughly investigated and recorded. No toxic effects are known for rhenium metal. Rhenium compounds may be irritating to the eyes and respiratory tract.
<i>General Advice</i>	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<i>Inhalation Exposure</i>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<i>Dermal Exposure</i>	Wash off with soap and plenty of water. Consult a physician.
<i>Eye Exposure</i>	Flush eyes with water as a precaution.
<i>Oral Exposure</i>	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

<i>Flash Point</i>	Not available
<i>Autoignition Temperature</i>	Not available
<i>Flammable Limits</i>	
<i>Lower</i>	Not available
<i>Upper</i>	Not available
<i>Suitable Extinguishing Media:</i>	<i>Powder Fires:</i> Class D extinguisher or special powder for metal fires. Do not use water. <i>Solid Material Fires:</i> Non-flammable. Use extinguishing media suitable for surrounding material and type of fire.

Special Firefighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

Unusual Fire & Explosion Hazard: Flammable in the form of dust or powder when exposed to heat or flame. Ignites in oxygen at 300 °C. Violent reaction with fluorine at 125 °C. Contact with acids can generate flammable hydrogen gas.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions Wear appropriate respiratory and protective equipment as specified in section 8.

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

Methods for Cleaning Up Remove all sources of ignition and provide ventilation. Sweep or scoop up and place in a closed container for disposal. Do not generate dust during cleanup. Use non-sparking tools. Dispose of all waste in accordance with federal, state and local laws.

7. HANDLING AND STORAGE

Handling Wash thoroughly after handling. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep ignition sources away. Protect against electrostatic charges.

Storage Store in a cool, dry area. Store in a tightly-sealed container. Do not store together with oxidizing or acidic materials.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Work Practices Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing, safety drench shower and facilities for washing.

Ventilation Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

Personal Protective Equipment

<i>Respiratory Protection</i>	NIOSH-approved respirator in dusting conditions
<i>Hand Protection</i>	Rubber gloves
<i>Eye Protection</i>	Safety glasses or goggles
<i>Other Protective Clothing or Equipment</i>	Protective gear suitable to prevent contamination

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Solid or powder
Color	Silver-gray (solid) or black (powder)
Odor	No odor

Safety Data

Molecular Weight:	186.21 g/mol
Boiling Point:	5900 °C
Melting Point:	3180 °C
Specific Gravity:	20.53 g/cc
Solubility in H ₂ O:	Insoluble

10. STABILITY AND REACTIVITY

<i>Stability</i>	Stable
<i>Conditions to Avoid</i>	None
<i>Incompatible Materials</i>	Strong oxidizing agents, fluorine, and strong acids
<i>Hazardous Decomposition Products</i>	Oxides of rhenium, hydrogen.
<i>Hazardous Polymerization</i>	Will not occur

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

<i>Primary Irritant Effect</i>	
<i>Skin</i>	Irritant to skin and mucous membranes
<i>Eye</i>	Irritating effect
<i>Sensitization</i>	No sensitizing effects known
<i>Subacute to Chronic Toxicity</i>	No toxic effects are known for rhenium metal. Rhenium compounds may be irritating to the eyes and respiratory tract.

Acute Effects

<i>Inhalation</i>	May cause irritation to the respiratory tract and mucous membrane. Dusts may cause asthma attacks and lung damage such as lung granulomas and pulmonary edema.
<i>Ingestion</i>	Mucous membrane irritation
<i>Skin</i>	Dust or powder may cause skin irritation
<i>Eye</i>	Dust or powder may irritate eyes
<i>Chronic Effects</i>	No chronic health effects recorded
<i>Medical Conditions Generally Aggravated by Exposure</i>	Pre-existing respiratory disorders

Carcinogenicity

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH.

<i>NTP</i>	No
<i>IARC</i>	No
<i>Signs and Symptoms of Exposure</i>	To the best of our knowledge, the acute and chronic toxicity of this substance is not fully known.
<i>Additional Information</i>	RTECS: VI0780000

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>	Consult state, local or national regulations to ensure proper disposal. 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. Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

DOT (solid forms)	
<i>Hazard Class</i>	None
DOT (powder)	
<i>Proper Shipping Name</i>	Metal powder, flammable, n.o.s. (Rhenium)
<i>Hazard Class</i>	4.1
<i>Identification No.</i>	UN3089
<i>Packing Group</i>	III

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	Rhenium / CAS No. 7440-15-5
New Jersey Right to Know Components	Rhenium / CAS No. 7440-15-5
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
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<i>Issuing Date</i>	January 12, 2014
<i>Revision Date</i>	October 18, 2024
<i>Revision Number</i>	4
<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

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