

## Section 1: Identification of the Substance/Mixture and of the Company/Undertaking

### Product Identifier:

Identification as on the label/Trade name: Rhenium.

Molecular weight: 186.21

Chemical formula: Re

Synonyms: None.

### Details of the supplier of the Safety Data Sheet:

Neonest AB  
Storgatan 70C, Solna  
SE-17152  
Sweden

### Contact details:

+46-76-219-9731

### 24-hour Emergency Contact:

Swedish Poisons Centre  
Phone: 112 - Ask for Poisons Information, 112 – begär Giftinformation.

### Other International Contacts:

CHEMTREC 24-hour: +1-703-741-5500 (US + Worldwide)  
NHS: 111 (UK)  
Charite: +49 30 450 531 000 (Netherlands)  
INTCF: +34 917689800 (Spain)  
CapTv: +33 1 40 05 48 48 (France)

## Section 2: Hazards Identification

### Classification of the substances or mixture:

The mixture is classified according to: Regulation EC 1272/2008 [EU-GHS/CLP]

### **Hazard classes/Hazard categories:**

Flammable solids (Category 1)

### **Hazard statement:**

H228

### Label elements:

#### Hazard pictograms:



Signal Words: Danger.

Hazard Statements: H228 Flammable solid.

**Precautionary Statements:** P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

**Other hazards:** None known.

### Section 3: Composition/Information on Ingredients

**Substance/Mixture:** Substance.

**Ingredients:**

Substance name (IUPAC/EC)	CAS-No.	Molecular weight	Concentration % by weight	Classification
	EC-No.			EC1272/2008
Rhenium	7440-15-5	186.21	>99%	Not Classified.
	231-124-5			

For explanation of abbreviations see Section 16.

### Section 4: First-Aid Measures

**Description of first aid measures:**

**In case of inhalation:** If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

**In case of skin contact:** Wash off with soap and plenty of water. Consult a physician.

**In case of eye contact:** Flush eyes with water as a precaution.

**In case of ingestion:** Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

**Most important symptoms and effects, both acute and delayed:**

**Inhalation:** May be harmful if inhaled; may cause respiratory tract irritation.

**Eyes:** May cause eye irritation.

**Skin contact:** May be harmful if absorbed through skin; may cause skin irritation.

**Ingestion:** May be harmful if swallowed.

**Indication of any immediate medical attention and special treatment needed:** Treat symptomatically. Show this safety data sheet to a physician or emergency room.

### Section 5: Fire-Fighting Measures

**Extinguisher media:**

**Suitable extinguisher media:** Powder Fires: Class D extinguisher or special powder for metal fires. Do not use water. Solid Material Fires: Non-flammable. Use extinguishing media suitable for surrounding material and type of fire.

**Unsuitable extinguishing media:** None known.

**Special hazards arising from the mixture:** Rhenium oxides.

**Advice for fire-fighters:** Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.

**Further information:** 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. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

## Section 6: Accidental Release Measures

### Personal precautions, protective equipment and emergency procedures:

**Personal precautions:** Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Wear appropriate respiratory and protective equipment as specified in Section 8.

**Environmental precautions:** Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. Local authorities should be advised if significant spillages cannot be contained. Do not let product enter drains.

### Methods for containment and cleaning up:

**Methods for cleaning up:** Remove all sources of ignition and provide ventilation. Sweep, scoop or collect with an electrically protected vacuum cleaner or by wet-brushing up and place in a closed container for disposal. Do not generate dust during clean-up. Use non-sparking tools. Dispose of all waste in accordance with federal, state and local laws.

### Reference to other sections:

Treat recovered material as described in the section "Disposal considerations".

## Section 7: Handling and Storage

### Precautions for safe handling:

**Advice on safe 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.

**Hygiene measures:** Do not eat, drink or smoke when using this product.

### Conditions for safe storage, including incompatibilities:

**Requirements for storage areas and containers:** Store in a cool, dry area. Store in a tightly-sealed container. Do not store together with oxidizing or acidic materials.

## Section 8: Exposure Controls/Personal Protection

### Control parameters:

**Occupational exposure limits:** Contains no substances with occupational exposure limit values

### Exposure controls:

**Appropriate engineering controls:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

### Individual protection measures, such as personal protective equipment:

**Eye/face protection:** Safety glasses or goggles 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).

**Hand protection:** Rubber 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.

**Body protection:** Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific workplace.

**Respiratory protection:** NIOSH-approved respirator in dusting conditions. 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.

## Section 9: Physical and Chemical Properties

### Information on basic physical and chemical properties

**Appearance (form):** Solid (powder).

**Colour:** Black.

**Odour:** Odourless.

**Odour threshold:** No data available.

**Molecular Weight:** 186.21

**pH (concentration):** No data available.

**Melting point/range (°C):** 3180 °C

**Boiling point/range (°C):** 5900 °C

**Freezing point (°C):** No data available.

**Flash point (°C):** No data available.

**Evaporation rate:** No data available.

**Flammability (solid, gas):** No data available.

**Ignition temperature (°C):** No data available.

**Upper/lower flammability/explosive limits:** No data available.

**Vapour pressure (20 °C):** No data available

**Vapour density:** No data available.

**Relative density (25 °C):** 21.02 g/cc

**Water solubility (g/L) at 20 °C:** Insoluble.

**n-Octanol/Water partition coefficient:** No data available.

**Auto-ignition temperature:** No data available.

**Decomposition temperature:** No data available.

**Viscosity, dynamic (mPa s):** No data available.

**Explosive properties:** The substance or mixture is not classified as explosive.

**Oxidising properties:** The substance or mixture is not classified as oxidizing.

## Section 10: Stability and Reactivity

**Reactivity:** No data available.

**Chemical stability:** Stable under recommended storage conditions.

**Possibility of hazardous reactions:** No data available.

**Conditions to avoid:** Heat, flames and sparks.

**Incompatible materials:** Strong oxidizing agents, fluorine, and strong acids.

**Hazardous decomposition products:** Oxides of rhenium, hydrogen.

## Section 11: Toxicological Information

### Information on toxicological effects:

Not classified based on available information.

**Classification according to GHS (1272/2008/EG, CLP)****Skin corrosion/irritation:**

Not classified based on available information.

**Serious eye damage/eye irritation:**

Not classified based on available information.

**Respiratory or skin sensitisation:**

Not classified based on available information.

**Germ cell mutagenicity:**

Not classified based on available information.

**Carcinogenicity:**

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

NTP: No.

IARC: No.

**Reproductive toxicity:**

Not classified based on available information.

**Specific target organ toxicity – single exposure (STOT):**

Not classified based on available information.

**Specific target organ toxicity (STOT) – repeated exposure:**

Not classified based on available information.

**Aspiration toxicity:**

Not classified based on available information.

**Section 12: Ecological Information**

**Toxicity:** No data available.

**Persistence and degradability:** No data available.

**Bioaccumulative potential:** No data available.

**Mobility in soil:** No data available.

**Results of PBT& vPvB assessment:** Not relevant.

**Other adverse effects:** No data available.

**Section 13: Disposal Considerations**

**Waste treatment methods:** Consult 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.

**Section 14: Transport Information****DOT:**

**Proper Shipping Name:** Metal powder, flammable, n.o.s.(Rhenium).

**Hazard Class:** 4.1

**UN Number:** 3089

**Packing Group:** III

**Hazard Label:**



**IATA:**

**Proper Shipping Name:** Metal powder, flammable, n.o.s.(Rhenium).

**Hazard Class:** 4.1

**UN Number:** 3089

**Packing Group:** III

**IMDG:**

**Proper Shipping Name:** Metal powder, flammable, n.o.s.(Rhenium).

**Hazard Class:** 4.1

**UN Number:** 3089

**Packing Group:** III

## Section 15: Regulatory Information

**EU regulations:**

**Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended**

Not listed.

**Regulation (EC) No. 850/2004 on persistent organic pollutants, Annex I**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended**

Not listed.

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended**

Not listed.

**Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry**

Not listed.

**Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA**

Not listed.

**Authorisations:**

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorization, as amended**

Not listed.

**Restrictions on use:**

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use**

Not regulated.

**Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended**

Not listed.

**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work**

Not regulated.

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breastfeeding.**

Not regulated.

**Other EU regulations:**

**Directive 2012/18/EU on major accident hazards involving dangerous substances**

Not listed.

**Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.**

Always applicable.

**Directive 94/33/EC on the protection of young people at work**

Not listed.

**Other regulations:** The product is classified and labelled in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006, as amended.

**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 Powders:** 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.

**National regulations:** Follow national regulation for work with chemical agents.

**Chemical safety assessment:** No Chemical Safety Assessment has been carried out.

## Section 16: Other Information

**List of abbreviations:**

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

**References:**

Not available.

**Full text of any H-statements not written out in full under Sections 2 to 15:**

None.

**Revision information:**

None.

**Training information:**

Follow training instructions when handling this material.

**Further Information:**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.