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**Oak Ridge National Laboratory  
Oak Ridge, Tennessee 37831**

IBO-MSDS-04981

**MATERIAL SAFETY DATA SHEET**

The issuance of this document complies with the U. S. Department of Labor, Occupational Safety and Health Administration (OSHA) Hazard Communication Standard 29 CFR 1910.1200. Standard must be consulted for specific requirements.

**Definitions:**

|              |   |             |                            |
|--------------|---|-------------|----------------------------|
| <b>ACGIH</b> | American Conference of Governmental Industrial Hygienists |             |                            |
| <b>NIOSH</b> | National Institute for Occupational Safety and Health     |             |                            |
| <b>NE</b>    | Not Established   | <b>NISS</b> | Not In Sources Searched    |
| <b>NA</b>    | Not Applicable  | <b>TLV</b>  | Threshold Limit Value      |
| <b>TWA</b>   | Time Weighted Average                                     | <b>PEL</b>  | Permissible Exposure Limit |

**IDENTITY** (As used on label and list): Rhenium (-185) Metal

**SECTION I. Manufacturer's Identification**

|                                   |   |
|-----------------------------------|---|
| <b>Manufacturer's Name:</b>       | <b>Emergency Telephone Number:</b>      |
| UT-Battelle                       | Lab Shift Superintendent (865) 574-6606 |
| c/o Oak Ridge National Laboratory | <b>Telephone Number for Assistance:</b> |
| Isotope Business Office           | Isotope Business Office (865) 574-6984  |
| P. O. Box 2008                    | <b>Date Prepared:</b> 15-January-1987   |
| Oak Ridge, Tennessee 37831        | <b>Date Reviewed:</b> 26-June-2002      |

**SECTION II. Hazardous Ingredients/Identity Information**

|   |                         |   |
|---|-------------------------|---|
| <b>Exposure Limits:</b>                   |                         |   |
| OSHA:                                     |                         | NE                                      |
| ACGIH TLV:                                |                         | NE                                      |
| NIOSH:                                    |                         | NE                                      |
| Immediately Dangerous to Life and Health: |                         | NE                                      |
| <b>Chemical Formula:</b>                  | Re                      | <b>CAS Registry Number:</b> 007440-15-5 |
|   |                         | <b>RTECS Number:</b> NISS               |
| <b>Health Hazard Rating:</b>              | 1, slight health hazard | <b>DOT Class:</b> 4.1, Flammable Solid  |
| <b>Fire Hazard Rating:</b>                | 1, slightly flammable   | <b>DOT Label:</b> Flammable Solid       |
| <b>Reactivity Rating:</b>                 | 0, nonreactive          | <b>DOT Number:</b> UN 3089              |

**SECTION III. Physical/Chemical Characteristics**

|  |                                |                           |      |
|--|--------------------------------|---------------------------|------|
| <b>Physical Description:</b>                   | Black to silver-gray crystals. |                           |      |
| <b>Molecular Weight (naturally occurring):</b> | 186.21                         |                           |      |
| <b>Melting Point:</b>                          | 3180°C                         | <b>Vapor Pressure:</b>    | NISS |
| <b>Boiling Point:</b>                          | 5900°C                         | <b>Vapor Density:</b>     | NISS |
| <b>Specific Gravity:</b>                       | 21.02 (water=1)                | <b>Percent Volatiles:</b> | NA   |
| <b>Evaporation Rate:</b>                       | NISS                           | <b>Solubility:</b>        | NISS |

**SECTION IV. Fire and Explosion Hazard Data**

|                                    |  |                                  |      |
|------------------------------------|--|----------------------------------|------|
| <b>Flash Point (method):</b>       | NISS   | <b>Lower Flammability Limit:</b> | NISS |
| <b>Autoignition Temperature:</b>   | NISS   | <b>Upper Flammability Limit:</b> | NISS |
| <b>Extinguishing Media:</b>        | Use extinguishing agents applicable to surrounding materials.  |                                  |      |
| <b>Firefighting Procedures:</b>    | Firefighting techniques should concentrate on controlling the spread of the fire to other combustible materials. Wear pressure-demand, self-contained breathing apparatus and full firefighting protective clothing. |                                  |      |
| <b>Fire and Explosion Hazards:</b> | Flammable in the form of dust when exposed to heat or flame.   |                                  |      |

**SECTION V. Reactivity Data**

|   |                             |                              |
|---|-----------------------------|------------------------------|
| <b>Stability:</b>                             | Unstable: _____             | Stable: <u>  X  </u>         |
| <b>Conditions to Avoid:</b>                   | Ignites in oxygen at 300°C. |                              |
| <b>Incompatibility (materials to avoid):</b>  | Fluorine                    |                              |
| <b>Hazardous Decomposition or Byproducts:</b> | NISS                        |                              |
| <b>Hazardous Polymerization:</b>              | May Occur: _____            | Will Not Occur: <u>  X  </u> |

**SECTION VI. Health Hazard Data**

|  |   |                     |                          |
|--|---|---------------------|--------------------------|
| <u>Routes of Entry:</u>                        | Inhalation: <u>NISS</u>   | Skin: <u>      </u> | Ingestion: <u>      </u> |
| <u>Signs and Symptoms of Exposure:</u>         |   |                     |                          |
| <u>Acute Inhalation:</u>                       | NISS  |                     |                          |
| <u>Acute Swallowing:</u>                       | NISS  |                     |                          |
| <u>Acute Skin Contact:</u>                     | Irritant  |                     |                          |
| <u>Acute Eye Contact:</u>                      | Irritant  |                     |                          |
| <u>Chronic:</u>                                | NISS  |                     |                          |
| <u>Health Hazards (Target organs/systems):</u> |   |                     |                          |
| <u>Acute:</u>                                  | Eyes, skin (cutaneous hazard), mucous membrane, respiratory system.     |                     |                          |
| <u>Chronic:</u>                                | NISS  |                     |                          |
| <u>Emergency and First Aid Procedures:</u>     |   |                     |                          |
| <u>Inhalation:</u>                             | Remove to fresh air. No emergency care anticipated.                     |                     |                          |
| <u>Swallowing:</u>                             | Induce vomiting only after massive ingestion.                           |                     |                          |
| <u>Skin contact:</u>                           | Remove contaminated clothing and wash skin with plenty of water.        |                     |                          |
| <u>Eye contact:</u>                            | Flush eyes at once with water for at least 15 minutes. Get medical aid. |                     |                          |
| <u>Physicians' notes:</u>                      | NISS  |                     |                          |

Carcinogenicity:      NTP      No      IARC Monographs      No      OSHA Regulated      No

Medical Conditions Generally Aggravated by Exposure:    NISS

**SECTION VII. Precautions for Safe Handling and Use**

Steps to be Taken in Case Material is Released or Spilled: Notify safety personnel of leaks or spills. Remove spills by vacuuming or wet sweeping in order to keep airborne dust at a minimum.

Waste Disposal Method: Collect in an appropriate container for salvage or disposal. Treat unsalvageable waste as a toxic solid in accordance with federal, state, and local regulations.

Precautions to be Taken in Handling and Storing: Store in closed container in a cool, dry, well-ventilated, low fire-risk area. Protect container from physical damage.

Other Precautions: Avoid breathing dust. Avoid skin and eye contact. Eyewash stations and washing facilities should be accessible to areas of use.

**SECTION VIII. Control Measures**

|  |   |
|--|---|
| <u>Respiratory Protection (specify type):</u>  | Use a NIOSH-approved inorganic dust respirator when dust levels are high.   |
| <u>Ventilation:</u>                            |   |
| <u>Local Exhaust:</u>                          | Employ to keep dust levels low.   |
| <u>Mechanical (general):</u>                   | Employ to keep dust levels low.   |
| <u>Special:</u>                                | NISS  |
| <u>Other:</u>                                  | NISS  |
| <u>Protective Gloves:</u>                      | Compatible chemical resistant gloves.   |
| <u>Eye Protection:</u>                         | Wear approved chemical safety goggles/glasses.  |
| <u>Other Protective Clothing or Equipment:</u> | Wear protective clothing.   |
| <u>Work/Hygienic Practices:</u>                | Use good housekeeping practices to prevent accumulation of dust and follow sound cleaning techniques that will keep airborne nuisance particulate at a minimum. |
|  | Wash hands and face thoroughly before eating, drinking, or smoking after handling.  |

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