SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifiers

Product name: Rhodium
Product Number: 204218
Brand: Aldrich
CAS-No.: 7440-16-6

1.2 Relevant identified uses of the substance or mixture and uses advised against

Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company: Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone: +1 314 771-5765
Fax: +1 800 325-5052

1.4 Emergency telephone

Emergency Phone #: 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Not a hazardous substance or mixture.

2.2 GHS Label elements, including precautionary statements

Not a hazardous substance or mixture.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none

SECTION 3: Composition/information on ingredients

3.1 Substances

Formula: Rh
Molecular weight: 102.91 g/mol
CAS-No.: 7440-16-6
EC-No.: 231-125-0

Aldrich - 204218
<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhodium</td>
<td></td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

**SECTION 4: First aid measures**

**4.1 Description of first-aid measures**

*If inhaled*
After inhalation: fresh air.

*In case of skin contact*
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower.

*In case of eye contact*
After eye contact: rinse out with plenty of water. Remove contact lenses.

*If swallowed*
After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

**4.2 Most important symptoms and effects, both acute and delayed**
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

**4.3 Indication of any immediate medical attention and special treatment needed**
No data available

**SECTION 5: Firefighting measures**

**5.1 Extinguishing media**

*Suitable extinguishing media*
Foam Carbon dioxide (CO2) Dry powder

*Unsuitable extinguishing media*
For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**
Rhodium/rhodium oxides
Combustible.
Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**
In the event of fire, wear self-contained breathing apparatus.

**5.4 Further information**
none
SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Advice for non-emergency personnel: Evacuate the danger area, observe emergency procedures, consult an expert.
For personal protection see section 8.

6.2 Environmental precautions
No special precautionary measures necessary.

6.3 Methods and materials for containment and cleaning up
Observe possible material restrictions (see sections 7 and 10).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
No data available.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>rhodium</td>
<td>7440-16-6</td>
<td>TWA</td>
<td>1 mg/m3</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

Remarks Not classifiable as a human carcinogen

<table>
<thead>
<tr>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>TWA</td>
<td>0.1 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>PEL</td>
<td>0.1 mg/m3</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
</tbody>
</table>

8.2 Exposure controls

Appropriate engineering controls
Change contaminated clothing. Wash hands after working with substance.
Personal protective equipment

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

**Skin protection**
not required

**Respiratory protection**
Not required; except in case of aerosol formation.

**Control of environmental exposure**
No special precautionary measures necessary.

---

**SECTION 9: Physical and chemical properties**

**9.1 Information on basic physical and chemical properties**

<table>
<thead>
<tr>
<th>a) Appearance</th>
<th>Form: powder</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Color: gray</td>
</tr>
<tr>
<td>b) Odor</td>
<td>No data available</td>
</tr>
<tr>
<td>c) Odor Threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>d) pH</td>
<td>No data available</td>
</tr>
<tr>
<td>e) Melting point/freezing point</td>
<td>Melting point/range: 1,966 °C (3,571 °F) - lit.</td>
</tr>
<tr>
<td>f) Initial boiling point and boiling range</td>
<td>3,727 °C 6,741 °F - lit.</td>
</tr>
<tr>
<td>g) Flash point</td>
<td>()Not applicable</td>
</tr>
<tr>
<td>h) Evaporation rate</td>
<td>No data available</td>
</tr>
<tr>
<td>i) Flammability (solid, gas)</td>
<td>No data available</td>
</tr>
<tr>
<td>j) Upper/lower flammability or explosive limits</td>
<td>No data available</td>
</tr>
<tr>
<td>k) Vapor pressure</td>
<td>No data available</td>
</tr>
<tr>
<td>l) Vapor density</td>
<td>No data available</td>
</tr>
<tr>
<td>m) Density</td>
<td>12.41 g/mL - lit.</td>
</tr>
<tr>
<td></td>
<td>Relative density</td>
</tr>
<tr>
<td>n) Water solubility</td>
<td>No data available</td>
</tr>
<tr>
<td>o) Partition coefficient: n-octanol/water</td>
<td>No data available</td>
</tr>
<tr>
<td>p) Autoignition temperature</td>
<td>not auto-flammable</td>
</tr>
<tr>
<td>q) Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>r) Viscosity</td>
<td>No data available</td>
</tr>
</tbody>
</table>
s) Explosive properties  No data available

9.2 Other safety information
No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
no information available

10.5 Incompatible materials
Strong oxidizing agents, Halogens, Chlorine trifluoride, Oxygen difluoride

10.6 Hazardous decomposition products
In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

  Acute toxicity
  Oral: No data available
  Inhalation: No data available
  Dermal: No data available
  No data available

  Skin corrosion/irritation
  No data available

  Serious eye damage/eye irritation
  No data available

  Respiratory or skin sensitization
  No data available

  Germ cell mutagenicity
  No data available

  Carcinogenicity
  This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

  IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
  NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

11.2 Additional Information

RTECS: VI9069000
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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**SECTION 12: Ecological information**

12.1 **Toxicity**
No data available

12.2 **Persistence and degradability**
The methods for determining biodegradability are not applicable to inorganic substances.

12.3 **Bioaccumulative potential**
No data available

12.4 **Mobility in soil**
No data available

12.5 **Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 **Endocrine disrupting properties**
No data available

12.7 **Other adverse effects**
No data available

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**SECTION 13: Disposal considerations**

13.1 **Waste treatment methods**

**Product**
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.
SECTION 14: Transport information

**DOT (US)**
- UN number: 3089  
- Class: 4.1  
- Packing group: II  
- Proper shipping name: Metal powders, flammable, n.o.s.  
- Reportable Quantity (RQ): No  
- Poison Inhalation Hazard: No

**IMDG**
- UN number: 3089  
- Class: 4.1  
- Packing group: II  
- Proper shipping name: METAL POWDER, FLAMMABLE, N.O.S.  
- EMS-No: F-G, S-G

**IATA**
- UN number: 3089  
- Class: 4.1  
- Packing group: II  
- Proper shipping name: Metal powders, flammable, n.o.s.

SECTION 15: Regulatory information

**SARA 302 Components**
- This material does not contain any components with a section 302 EHS TPQ.

**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.

SECTION 16: Other information

**Further information**
- The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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