



MATERIAL SAFETY DATA SHEET

Ruthenium Powder -200 Mesh

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|---------------------|--|--------|---|--------------|---|------------|---|---------------------|---|
| <p>NFPA</p> | <p>HMIS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #00b0f0; color: white;">HEALTH</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="background-color: #ff0000; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #ffff00;">REACTIVITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td>PERSONAL PROTECTION</td> <td style="text-align: center;">C</td> </tr> </table> | HEALTH | 1 | FLAMMABILITY | 0 | REACTIVITY | 0 | PERSONAL PROTECTION | C |
| HEALTH | 1 | | | | | | | | |
| FLAMMABILITY | 0 | | | | | | | | |
| REACTIVITY | 0 | | | | | | | | |
| PERSONAL PROTECTION | C | | | | | | | | |

1. Product And Company Identification

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| <p>Supplier Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States</p> <p>Company Contact: Wayne Sher Telephone Number: 410-398-7200 FAX Number: 410-398-2918 E-Mail: wsher@colonialmetals.com Web Site: colonialmetals.com</p> | <p>Manufacturer Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States</p> <p>Company Contact: Wayne Sher Telephone Number: 410-398-7200 FAX Number: 410-398-2918 E-Mail: wsher@colonialmetals.com Web Site: colonialmetals.com</p> |
| <p>Supplier Emergency Contacts & Phone Number Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887</p> | <p>Manufacturer Emergency Contacts & Phone Number Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887</p> |

Issue Date: 03/17/2006

Product Name: Ruthenium Powder -200 Mesh
Chemical Name: Ruthenium Sponge
CAS Number: 7440-18-8
Chemical Family: Platinum Group Metal
Chemical Formula: Ru
MSDS Number: 8022
Product Code: 8022

2. Composition/Information On Ingredients

| Ingredient Name | CAS Number | Percent Of Total Weight |
|-----------------|------------|-------------------------|
| Rutheium Powder | 7440-18-81 | 100 |

EMERGENCY OVERVIEW

To the best of our knowledge the chemical, physical, and toxicological properties have not been thoroughly investigated. Avoid organics. Product incompatible with organics, ecspecially acetone and alcohol.

3. Hazards Identification

Primary Routes(s) Of Entry

Eyes: Likley
Inhalation: Likely



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3. Hazards Identification - Continued

Primary Routes(s) Of Entry - Continued

Ingestion: Likely

Eye Hazards

Causes eye irritation.

Skin Hazards

Causes skin irritation.

Ingestion Hazards

Irritation; poison is unlikely on a single exposure. Does not cause serious toxic manifestations.

Inhalation Hazards

Causes respiratory tract irritation.

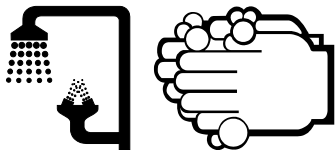
Conditions Aggravated By Exposure

May cause irritation of the respiratory system. Maintain housekeeping and personal hygiene to minimize exposure and prevent sensitization.

Conditions Aggravated By Overexposure

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

First Aid (Pictograms)



4. First Aid Measures

Eye

Flush for 15 minutes with plenty of water. If discomfort occurs or persists, contact a physician.

Skin

Flush area for 15 minutes with water and wash with soap and water. If discomfort occurs or persists, contact a physician. Remove contaminated clothing and shoes and wash before reuse.

Ingestion

Seek medical attention immediately. Keep victim calm. Give the victim water (only if conscious). Induce vomiting only if directed by medical personnel.

Inhalation

Remove to fresh air immediately. If discomfort occurs or persists, contact a physician.

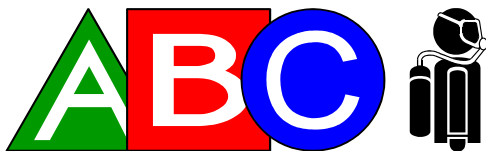


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4. First Aid Measures - Continued

Fire Fighting (Pictograms)



5. Fire Fighting Measures

Flash Point Method: NA

Flammability Class: NA

Fire And Explosion Hazards

Use proper safety equipment. Can ignite by spontaneous combustion in the presence of alcohols or organics.

Extinguishing Media

Use water spray or carbon dioxide. Do not use organics

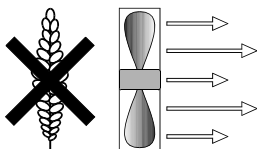
Fire Fighting Instructions

Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

6. Accidental Release Measures

Sweep or soak up and place in sealed container. Taking care to avoid dusting. Person protected with full face shield and NIOSH approved respirator and cartridge for dust. Ventilate area and wash spill site after pick-up is complete.

Handling & Storage (Pictograms)



7. Handling And Storage

Handling And Storage Precautions

Avoid contact with eyes, prolonged or repeated contact with skin. Avoid breathing dust. Use compatible chemical resistant gloves. Wash hands thoroughly after handling.

Handling Precautions

Avoid breathing dust or vapor. Avoid creating dust. Do not smoke or use matches or lighters during use...Keep away from heat, sparks, flame, and other sources of ignition... Use only with adequate ventilation.

Storage Precautions

Do not store directly on ground. Store in a dry place. Keep away from heat, sparks, flame, and other sources of ignition....

Work/Hygienic Practices

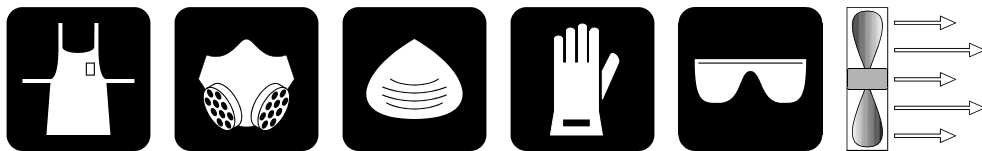
Use good personal hygiene. Wash thoroughly after handling. Wash thoroughly with soap and water after handling.



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Protective Clothing (Pictograms)



8. Exposure Controls/Personal Protection

Engineering Controls

Ventilation: **Local Exhaust:** Required in handling area
Mechanical: Desirable to insure concentration of material below TLV/TWA levels
Other: Closed Ventilation system - Dust (Laboratory Fume Hood)

Eye/Face Protection

ANSI approved safety glasses/goggles

Skin Protection

Rubber/Neoprene (use compatible chemical-resistant gloves).

Respiratory Protection

Chemical cartridge respirator for dust/mist/fume/radionuclide or self-contained breathing apparatus with full face shield.

Other/General Protection

Lab coat/apron, flame and chemical resistant protective clothing, eye wash, safety shower, and hygiene facilities for washing.

9. Physical And Chemical Properties

Appearance

Bluish-gray powder

Odor

Odorless

Chemical Type: Mixture

Physical State: Solid

Melting Point: Decomposes °C

Boiling Point: 3900 °C

Specific Gravity: 12.3

Molecular Weight: 101.07

Vapor Pressure: NA

Vapor Density: NA

pH Factor: NA

Solubility: Insoluble

Evaporation Rate: NA

10. Stability And Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur



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| <p>10. Stability And Reactivity - Continued</p> <p><u>Conditions To Avoid (Stability)</u> Mixing with organics</p> <p><u>Incompatible Materials</u> Halogens, hydrogen peroxide, chlorates, and hypochlorites, alcohols</p> <p><u>Hazardous Decomposition Products</u> NA</p> |
| <p>11. Toxicological Information</p> <p>No Data Available...</p> |
| <p>12. Ecological Information</p> <p>No Data Available...</p> |
| <p>13. Disposal Considerations</p> <p>Place in sealed container. Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation</p> <p>NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.</p> <p><u>RCRA Information</u> NL</p> |
| <p>14. Transport Information</p> <p><u>Proper Shipping Name</u> Non-Hazardous</p> <p><u>Hazard Class</u> NA</p> <p><u>Secondary Hazard Class</u> NA</p> <p><u>Additional Shipping Paper Description</u> IATA: Same as DOT 49 CFR. Consult IATA regulation before shipping.</p> |
| <p>15. Regulatory Information</p> <p><u>U.S. Regulatory Information</u> TSCA: This product is TSCA listed.</p> <p><u>SARA Section 313 Notification</u> This product does not require reporting per SARA Title 313.</p> <p><u>Canadian Regulatory Information</u> This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.</p> <p><u>European Union (EU) Regulatory Information</u> Hazard Symbols: Not available. Risk Phrases:</p> |



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15. Regulatory Information - Continued

European Union (EU) Regulatory Information - Continued

Safety Phrases:

S 24/25 Avoid contact with skin and eyes.

S 37 Wear suitable gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 28A After contact with skin, wash immediately with plenty of water.

16. Other Information

NFPA Rating

Health: 1

Fire: 0

Reactivity: 0

HMIS Rating

Health: 1

Fire: 0

Reactivity: 0

Personal Protection: C

Revision/Preparer Information

MSDS Preparer: Wayne Sher

MSDS Preparer Phone Number: 410-398-7200

This MSDS Supercedes A Previous MSDS Dated: 08/09/2004

Disclaimer

In compliance with the OSHA Hazard Communication Standard, 29 C.F.R 1910.1200, we are providing you with a Materials Safety Data Sheet (MSDS) for the hazardous material you are purchasing.

It is your responsibility to educate your employees on the safe use of the hazardous material. With this in mind, a copy should be forwarded to the supervisor of the user or to the user themselves, and copy should be retained in your files for future reference.

Colonial Metals, Inc. makes no presentation as to the accuracy of the information in the MSDS. The information is believed to be correct; however, you (the customer), should perform your own investigation and independent verification. If you resell the product, you are responsible to forward the information in the MSDS to your customer.

Colonial Metals, Inc.