1. Product And Company Identification

Supplier
DF Goldsmith Chemical and Metal
909 Pitner Avenue
Evanston, IL 60202, USA

Telephone Number: 847-869-7800
FAX Number: 847-869-2531
E-mail: goldchem@aol.com
Web Site: www.dfgoldsmith.com

Manufacturer
DF Goldsmith Chemical and Metal
909 Pitner Avenue
Evanston, IL 60202, USA

Telephone Number: 847-869-7800
FAX Number: 847-869-2531
E-mail: goldchem@aol.com
Web Site: www.dfgoldsmith.com

Supplier Emergency Contacts & Phone Number
Chemtrac: 800-424-9300

2. Composition/Information On Ingredients

<table>
<thead>
<tr>
<th>Ingredient Name</th>
<th>CAS Number</th>
<th>Percent Of Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruthenium Powder</td>
<td>7440-18-8</td>
<td>100</td>
</tr>
</tbody>
</table>

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, especially acetone and alcohol.

Hazard Identification (Pictograms)
3. Hazards Identification

**Primary Routes(s) Of Entry**

- **Eyes:** Likely
- **Inhalation:** Likely
- **Skin:** Likely
- **Ingestion:** Likely

**Eye Hazards**

May cause eye irritation.

**Skin Hazards**

May cause skin irritation.

**Ingestion Hazards**

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

**Inhalation Hazards**

May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

**Chronic/Carcinogenicity Effects**

Not available.

**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.

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 from exposure and move to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

**Note To Physician**

Remove to fresh air immediately. If discomfort occurs or persists, contact a physician.
### 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 CO₂ (Carbon Dioxide), dry chemical, or foam.

**Fire Fighting Instructions**  
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing.

### 6. Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated.  
**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Remove all sources of ignition. Use a spark-proof tool.

### 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**  
Use spark-proof tools and explosion proof equipment. Avoid breathing dust, vapor, mist, or gas. Avoid contact with skin and eyes.

**Storage Precautions**  
Keep away from sources of ignition. Store in a cool, dry place. Store in a tightly closed container. Flammables-area.

**Work/Hygienic Practices**  
Use good personal hygiene. Wash thoroughly with soap and water after handling.
### 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 @ 760 mm Hg °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

**Conditions To Avoid (Stability)**
- Stable under normal temperatures and pressures.

**Incompatible Materials**
- Strong oxidizing agents.

**Hazardous Decomposition Products**
- NA

**Conditions To Avoid (Polymerization)**
- Will not occur.
MATERIAL SAFETY DATA SHEET

Ruthenium Powder -100 Mesh

11. Toxicological Information

No Data Available...

12. Ecological Information

No Data Available...

13. Disposal Considerations

Consult Federal EPA, State and local regulations for proper disposal/recycle/reclamation
NOTE: Chemical additions, processing, or otherwise altering this material may make the waste management information presented above incomplete, inaccurate, or otherwise inappropriate.

RCRA Information

NL

14. Transport Information

Proper Shipping Name

DOT regulated -small quantity provisions apply (see 49 CFR 173.4)

Hazard Class

NA

Additional Shipping Paper Description

IATA: This product follows the same requirements as DOT 49 CFR. See IATA regulation before shipping.

15. Regulatory Information

TSCA

CAS# 7440-18-8 is listed on the TSCA inventory.

SARA Section 313 Notification

No chemicals are reportable under Section 313.

Canadian Regulatory Information

CAS# 7440-18-8 is listed on Canada's DSL List. CAS# 7440-18-8 is listed on Canada's DSL List.

WHMIS: Not available.

CAS# 7440-18-8 is not listed on Canada's Ingredient Disclosure List.

European Union (EU) Regulatory Information

Hazard Symbols:

F

Risk Phrases:
R 11 Highly flammable.

Safety Phrases:
S 16 Keep away from sources of ignition - No smoking.
S 29 Do not empty into drains.
S 33 Take precautionary measures against static discharges.
S 9 Keep container in a well-ventilated place.
16. Other Information

NFPA Rating
Health: 1
Fire: 3
Reactivity: 1

HMIS Rating
Health: 1
Fire: 3
Reactivity: 1
Personal Protection: J

Revision/Preparer Information
MSDS Preparer: DF Goldsmith Chemical and Metal
MSDS Preparer Phone Number: 847-869-7800
This MSDS Supersedes 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.

DF Goldsmith Chemical and Metal 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.