

## Safety Data Sheet

### 29 CFR 1910.1200

#### Section 1: Company and Product Identification

**Product Name:** Ruthenium Dioxide, Type 7402

**Product Code:** 8025

**Company:** Colonial Metals, Inc.  
 Building 20  
 505 Blue Ball Road  
 Elkton, MD 21921 United States  
 Company Contact: EHS Director  
 Telephone Number: 410-398-7200  
 FAX Number: 410-398-2918  
 E-Mail : info@colonialmetals.com  
 Web Site: www.colonialmetals.com



www.colonialmetals.com

**Emergency Response:** Supplier Emergency Contacts & Phone Number  
 Chemtrec: 800-424-9300  
 World Wide - Call COLLECT to U.S: 703-527-3887

#### Section 2: Hazards Identification

GHS07

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**Hazard Pictograms:**



**Signal Word:** Warning

**Hazard Category:** Acute tox, oral Cat 5  
 Skin corrosion/irritation Cat 2  
 Serious eye damage/eye irritation Cat 3

**Hazard Statements:** H303: May be harmful if swallowed  
 H315: Causes skin irritation  
 H320: Causes eye irritation

**Precautionary Statements:** P260: Do not breathe dust/fume/gas/mist/vapors/spray  
 P264: Wash thoroughly after handling  
 P270: Do not eat, drink or smoke when using this product  
 P271: Use only outdoors or in a well-ventilated area  
 P272: Contaminated work clothing should not be allowed out of the workplace  
 P280: Wear protective gloves/protective clothing/eye protection/face protection  
 P284: Wear respiratory protection

**Hazards not otherwise classified:** To the best of our knowledge, the chemical, the physical, and toxicological properties of this compound have not been thoroughly investigated.  
 Oxidation of ruthenium compounds may form toxic, volatile ruthenium tetroxide.

#### Section 3: Composition / Information on Ingredients

Hazardous substance (name)	Hazard Category	CAS#	Weight %
Ruthenium Dioxide	Irritant	12036-10-1	99 - 100
Chemical Family: Metal Oxide Chemical Formula: RuO2			
Synonyms Ruthenium Dioxide			

**Section 4: First Aid Measures**

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**General Info:** Consult a Physician. Show this safety data sheet to the doctor in attendance.

**Notable Exposure symptoms:** Irritation to skin, eyes and areas of contact.

**If ingested:** Rinse mouth. Seek immediate medical attention. Clear the airway and administer artificial respiration if not breathing.

If swallowed, do not induce vomiting unless directed to do so by medical personnel.

**If inhaled:** Remove the victim from the contaminated area while protecting yourself from exposure by wearing an appropriate respirator. Put a similar respirator on the victim if possible. Get medical attention immediately.

**Eye contact:** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses if present and easy to do. Get immediate medical attention.

**Skin contact:** Flush area for 15 minutes with water and wash with soap and water. Contact a physician immediately. Remove contaminated clothing and shoes and wash before reuse.

**Section 5: Fire Fighting Measures**

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**General Info:** Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing. Do not direct a solid stream of water or foam into burning molten material; this may cause spattering and spread the fire.

**Extinguishing Method / Equipment:** Use extinguishing media appropriate for surrounding fire conditions. Quench with large quantities of water. Use water spray to cool fire exposed containers.

**Hazardous** Not known

**Decomposition Info:**

**Section 6: Accidental Release Measures**

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**Personal precautions, protective equipment and procedures:** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate respiratory protective equipment and clothing during clean-up. Avoid breathing dust. Ventilate area if easy to do so. Contact local authorities if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

**Containment Equipment and Procedures:** Large Spills: Contain actively spilling material if safe and easy to do so. Do not let product enter drains. Sweep up and placed in a proper vessel for recovery or disposal. Avoid raising dust. Procedures: Ventilate and wash spill site after cleanup is complete..

Small Spills: Sweep or soak up and place in sealed container. Taking care to avoid dusting.

**Cleanup Procedures:** Contain spillage and then collect with an electrically protected vacuum cleaner or by wet brushing and place in container for disposal according to local regulations.

**Section 7: Handling and Storage**

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**Safe Handling Precautions:** Do not handle until all safety precautions have been read and understood. Keep containers tightly closed. Ensure adequate ventilation. Avoid breathing dust/vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment and wash thoroughly after handling. Keep away from ignition sources. Keep away from heat and direct sunlight.

**Recommendations for Storage:** Store in cool, dry area in a tightly closed product container away from sources of ignition or flame. Containers which are opened must be carefully resealed and kept upright to prevent leakage.

**Incompatibilities:** Organics, especially acetone and alcohol. Strong oxidizing agents

**Section 8: Exposure Control / Personal Protection**

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**General / Ventilation:** Local Exhaust: Required in handling area

**Engineering Controls:** Mechanical: Desirable to insure concentration of material below TLV/TWA levels

**Controls:** Other: Closed Ventilation system - Dust (Laboratory Fume Hood)

**Work Clothing:** Protective work clothing which covers skin and prevents exposures.

**Eye/face protection:** Wear safety glasses with side shields or goggles or face shield.

**Skin Protection:** Wear chemical resistant gloves.

**Respiratory Protection:** NIOSH approved chemical cartridge respirator for particulates and dust or self-contained breathing apparatus with full face shield.

**Additional Information:** Observe good chemical hygiene practices. Do not smoke or eat while using this product. Wash hands or exposed skin after using the product.

## Section 9: Physical and Chemical Properties

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<b>State:</b> Solid	<b>Melting Point:</b> N/A	<b>Freezing Point:</b> N/A
<b>Color:</b> Black Powder	<b>Boiling Point/Range:</b> N/A	<b>pH:</b> 1-2
<b>Molecular Wt.:</b> 133.07	<b>Odor:</b> N/A	<b>Water Solubility:</b> Insoluble
<b>Specific Gravity:</b> 6.97 g/cm <sup>3</sup>	<b>Flash Point:</b> N/A	<b>Part. Coeff (n-octanol/water):</b> N/A
<b>Upper Flam Limits:</b> N/A	<b>Lower Flam Limits:</b> N/A	<b>Vapor Pressure:</b> N/A
<b>VOC Content (lbs/gal):</b> N/A	<b>Viscosity:</b> N/A	<b>Autoignition Temp:</b> N/A

## Section 10: Stability and Reactivity

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**General:** This product is stable and non-reactive under normal conditions of use. Product is not subject to hazardous polymerization. Avoid open flame and ignition sources.

**Stability:** Stable

**Conditions to Avoid:** Moisture

**Incompatible materials:** Organics, especially acetone and alcohol. Strong oxidizing agents

**Decomposition products:** Not known

## Section 11: Toxicological Information

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**General Information:** To the best of our knowledge the chemical, physical, and toxicological effects of this compound have not been thoroughly investigated.

**Toxicological Information (product):** Acute Studies

Mouse  
3050 mg/kg  
LD50

Behavioral: Somnolence (general depressed activity)  
Behavioral: Change in motor activity (specific assay)  
Behavioral: Ataxia

Acute Oral Effects

Rat  
4580 mg/kg  
LD50

Remarks:  
Behavioral: Somnolence (general depressed activity)  
Behavioral: Change in motor activity (specific assay)  
Behavioral: Ataxia

Mouse  
 5570 mg/kg  
 LD50  
 Remarks:  
 Behavioral: Ataxia  
 Behavioral: Change in motor activity (specific assay)  
 Behavioral: Somnolence (general depressed activity)

**Likely Routes of Exposure:** Eye Contact  
 Skin Contact  
 Inhalation  
 Ingestion - possible, but considered unlikely.

#### Toxicological Information (contained substances)

**Carcinogenicity or mutagenicity:** To the best of our knowledge the chemical, physical, and toxicological effects of this compound have not been thoroughly investigated.

**Sensitization:** Product is not expected to be a sensitizer.

**Other Notes:** None

### Section 12: Ecological Information

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**General information:** No data available

**Aquatic toxicity:** No specific data available.

**Degradation / Mobility info:** No specific data available.

**Bioaccumulative potential:** No specific data available.

### Section 13: Disposal Information

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**Product disposal:** Place in a sealed container. 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.

**Container disposal:** Treat empty containers with extra care. Consult waste contractor.

**Other considerations:** No further information.

### Section 14: Transport Information

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**DOT: Proper Shipping Name:**  
 Non-Hazardous

**IMO/IMDG:** No data available

**IATA:** Same as DOT 49 CFR regulations. Consult IATA before shipping

**Comments:** None

### Section 15: Regulatory Information

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**TSCA:** Not listed in the TSCA

**SARA: SARA Section 313 Notification:**

This product does not contain any ingredients regulated under Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 or 40 CFR 372.

**Canadian DSL:** 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.

DSL: Yes

NDSL: No

**European Union (EU)** Symbol of Danger: Xi

**Regulatory Information:** Indication of Danger: Irritant  
R 36

Irritating to eyes  
S 26-36

In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.  
Wear suitable protective clothing.

**Other International Regulations:** None

## **Section 16: Other Information**

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**NFPA Rating**

Health: 2  
Fire: 0  
Reactivity: 0

**HMIS Rating**

Health: 2  
Fire: 0  
Reactivity: 0  
Personal  
Protection: C

**Precautionary Label**

Irritant

**Disclaimer:** *In compliance with the OSHA Hazard communication Standard, 2.9 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 believe to be correct; however, you (the customer), should preform 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.*

**SDS Author:** John Kerchner

**Version Date:** 7/30/2015