

Safety Data Sheet

29 CFR 1910.1200

Section 1: Company and Product Identification

Product Name: Ruthenium Dioxide

Product Code: 8040

CAS #: 12036-10-1

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

Hazard Pictograms:



Signal Word: Warning

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

Hazard Statements: H272: May intensify fire; oxidizer
 H303: May be harmful if swallowed
 H315: Causes skin irritation
 H320: Causes eye irritation

Precautionary Statements: P210: Keep away from heat/sparks/open flames/hot surfaces – No smoking
 P220: Keep/Store away from clothing/.../combustible materials
 P221: Take any precaution to avoid mixing with combustibles
 P264: Wash thoroughly after handling
 P280: Wear protective gloves/protective clothing/eye protection/face protection
 P310: Immediately call a POISON CENTER or doctor/physician
 P321: Specific treatment (see ... on this label)
 P363: Wash contaminated clothing before reuse
 P301+330+331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting
 P303+361+353: IF ON SKIN (or hair): Remove/Take off immediately all contaminated
 P304+312: IF INHALED: Call a POISON CENTER or doctor/physician if you feel
 P305+351+338: IF IN EYES: Rinse cautiously with water for several minutes. Remove
 P337+313: If eye irritation persists get medical advice/attention
 P370+378: In case of fire: Use ... for extinction
 P370+380: In case of fire: Evacuate area
 P501: Dispose of contents/container in accordance with

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	Eye Irrit. 2A; H319/ May cause or intensify fire; H270	12036-10-1	99 - 100
Chemical Family: Metal Oxide Chemical Formula: RuO ₂			
Synonyms Ruthenium Dioxide			

Section 4: First Aid Measures

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

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

symptoms:

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

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 Use extinguishing media appropriate for surrounding fire conditions. Quench with large quantities

Method / Equipment: of water. Use water spray to cool fire exposed containers.

Hazardous Not known

Decomposition Info:

Section 6: Accidental Release Measures

Personal precautions, 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 **protective equipment** and **procedures:** 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 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

Safe Handling Do not handle until all safety precautions have been read and understood. Keep containers tightly

Precautions: 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.

Storage: 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

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

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

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 NIOSH approved chemical cartridge respirator for particulates and dust or self-contained

Protection: breathing apparatus with full face shield.

Additional Observe good chemical hygiene practices. Do not smoke or eat while using this product. Wash

Information: hands or exposed skin after using the product.

Section 9: Physical and Chemical Properties

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

Section 10: Stability and Reactivity

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

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

Toxicological Information

Acute Studies
Information Mouse

(product): 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

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

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

DOT: Proper Shipping Name
Oxidizing Solid, n.o.s. (Ruthenium Dioxide),
Hazard Class
5.1
DOT Identification Number
UN1479
DOT Shipping Label
Oxidizer
Packaging Requirements
II
5 Kg Passenger (558)
25Kg Cargo (562)

IMO/IMDG: Same as DOT 49 CFR regulations. Refer to IATA for guidelines before shipping

IATA: Same as DOT 49 CFR regulations. Refer to IATA for guidelines before shipping

Comments: None

Section 15: Regulatory Information

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 Indication of Danger: Irritant, Oxidizer

Information: R 36/R38/R7

Irritating to eyes/skin

S 26-36 and S15-17

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

Wear suitable

protective clothing and face or eye protection.

Other International None

Regulations:

Section 16: Other Information

NFPA Rating

Health: 2

Fire: 2

Reactivity: Oxy

HMIS Rating

Health: 2

Fire: 2

Reactivity: Oxy

Personal

Protection: C

Precautionary Label

Irritant/Oxidizer

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 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.

SDS Author: Ernest Addo, PhD

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