


MATERIAL SAFETY DATA SHEET

Ruthenium Dioxide, Type 7402

NFPA 	HMIS <table border="1"><tr><td>HEALTH</td><td style="text-align: center;">2</td></tr><tr><td>FLAMMABILITY</td><td style="text-align: center;">0</td></tr><tr><td>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	2	FLAMMABILITY	0	REACTIVITY	0	PERSONAL PROTECTION	C
HEALTH	2								
FLAMMABILITY	0								
REACTIVITY	0								
PERSONAL PROTECTION	C								

1. Product And Company Identification

Supplier Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States Company Contact: Joseph Fittos III Telephone Number: 410-398-7200 FAX Number: 410-398-2918 E-Mail: jfittos@colonialmetals.com Web Site: colonialmetals.com	Manufacturer Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States Company Contact: Joseph Fittos III Telephone Number: 410-398-7200 FAX Number: 410-398-2918 E-Mail: jfittos@colonialmetals.com Web Site: colonialmetals.com
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Supplier Emergency Contacts & Phone Number Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887	Manufacturer Emergency Contacts & Phone Number Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887
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Issue Date: 03/16/2009

Product Name: Ruthenium Dioxide, Type 7402
Chemical Name: Ruthenium (IV) Oxide/Ruthenium Oxide
CAS Number: 12036-10-1
Chemical Family: Metal Oxide
Chemical Formula: RuO₂
MSDS Number: 8025
Product Code: 8025

Synonyms
Ruthenium Dioxide

2. Composition/Information On Ingredients

Ingredient Name	CAS Number	Percent Of Total Weight
Ruthenium Dioxide	12036-10-1	99 - 100

EMERGENCY OVERVIEW

Irritant.

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

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Hazards Identification (Pictograms)



3. Hazards Identification

Primary Routes(s) Of Entry

Eye: Likely
Inhalation: Likely
Skin: Likely
Ingestion: Likely

Eye Hazards

Causes eye irritation.

Skin Hazards

May cause slight irritation and dryness of the skin. May be harmful through skin absorption.

Ingestion Hazards

May be harmful if swallowed.

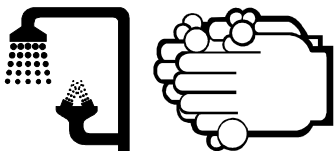
Inhalation Hazards

May be irritating to the nose, mucous membranes and upper respiratory tract. Maybe harmful if inhaled.

Conditions Aggravated By Exposure

May cause irritation of the respiratory system. Maintain housekeeping and personal hygiene to minimize exposure and prevent sensitization.
Oxidation of ruthenium compounds may form toxic, volatile ruthenium tetroxide.

First Aid (Pictograms)



4. First Aid Measures

Eye

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

Skin

Immediately wash skin with soap and copious amounts of water. If discomfort occurs or persists, contact a physician immediately. Remove contaminated clothing and shoes and wash before reuse.

Ingestion

If swallowed wash out mouth with water provided the victim is conscious. Never give anything by mouth to an unconscious person. Contact a physician immediately.

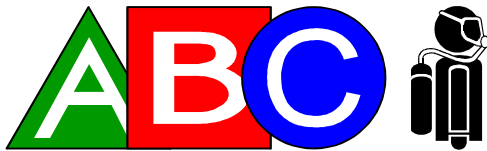
Inhalation

Remove to fresh air immediately. If victim is not breathing provide artificial respiration. If breathing is difficult supply oxygen. Contact a physician immediately.

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Fire Fighting (Pictograms)



5. Fire Fighting Measures

Flash Point: NA °C

Autoignition Point: NA °C

Flammability Class: NA

Fire And Explosion Hazards

Use proper safety equipment. Can ignite by spontaneous combustion in the presence of organics. Emits toxic fumes under fire conditions.

Extinguishing Media

Use extinguishing media appropriate to fight surrounding fire conditions.

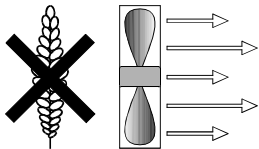
Fire Fighting Instructions

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

6. Accidental Release Measures

Sweep up and placed in a proper vessel for recovery or disposal. Avoid raising dust. Ventilate and wash spill site after clean up is complete.

Handling & Storage (Pictograms)



7. Handling And Storage

Handling Precautions

Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Avoid breathing dust.

Storage Precautions

Store in cool, dry place in tightly sealed containers.

Work/Hygienic Practices

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

Other Precautions

0.01 ppm high efficiency particular respirator/supplied air respirator/self-contained breathing apparatus; 0.2 ppm same as above with full face piece; 1 ppm powdered air purifying respirator with high efficiency filter/type C supplied air respirator operated in pressure demand mode. Store in a sealed container, plastic or plastic liner, in a cool, well ventilated, dry area away from volatile acids.

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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)

Safety shower and eyewash

Eye/Face Protection

ANSI approved safety glasses/goggles

Skin Protection

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

Respiratory Protection

NIOSH approved chemical cartridge respiratory for particulates and dust 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

Black powder

Chemical Type: Mixture

Physical State: Solid

Melting Point: Decomposes °C

Specific Gravity: 6.97 g/cm³

Molecular Weight: 133.07

Solubility: Insoluble

10. Stability And Reactivity

Stability: Stable

Hazardous Polymerization: Will not occur

Conditions To Avoid (Stability)

Moisture.

Incompatible Materials

Organics, especially acetone and alcohol. Strong oxidizing agents.

Hazardous Decomposition Products

Not known.

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11. Toxicological Information

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)

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.

14. Transport Information

Proper Shipping Name

Non-Hazardous

Additional Shipping Paper Description

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

15. Regulatory Information

U.S. Regulatory Information

This product is TSCA listed.

Canadian Regulatory Information

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) Regulatory Information

Symbol of Danger: Xi

Indication of Danger: Irritant

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15. Regulatory Information - Continued

European Union (EU) Regulatory Information - Continued

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.

DSCL - Europe (Pictograms)



16. Other Information

NFPA Rating

Health: 2

Fire: 0

Reactivity: 0

HMIS Rating

Health: 2

Fire: 0

Reactivity: 0

Personal Protection: C

Revision/Preparer Information

MSDS Preparer: Joseph J. Fittos III

MSDS Preparer Phone Number: 410-398-7200

This MSDS Supercedes A Previous MSDS Dated: 03/16/2009

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.