


# MATERIAL SAFETY DATA SHEET

## Ruthenium Dioxide, Type 7402

<b>NFPA</b> 	<b>HMIS</b> <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

**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

**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:** RuO<sub>2</sub>  
**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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## Ruthenium Dioxide, Type 7402

### 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

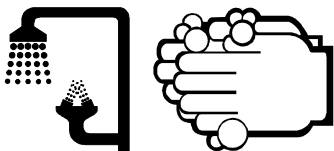
May be irritating to the nose, mucous membranes and upper respiratory tract. Maybe harmful if inhaled.

#### 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.

# MATERIAL SAFETY DATA SHEET

## Ruthenium Dioxide, Type 7402

### 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.

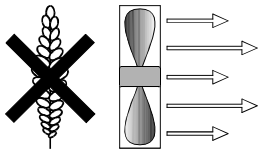
#### Fire Fighting Instructions

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.

# MATERIAL SAFETY DATA SHEET

## Ruthenium Dioxide, Type 7402

### 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/cm<sup>3</sup>

**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.

# MATERIAL SAFETY DATA SHEET

## Ruthenium Dioxide, Type 7402

### 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

# MATERIAL SAFETY DATA SHEET

## Ruthenium Dioxide, Type 7402

### 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.