



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

<p><b>NFPA</b></p>	<p><b>HMIS</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="background-color: #00b0f0; color: white;">HEALTH</td> <td style="text-align: center;">3</td> </tr> <tr> <td style="background-color: #ff0000; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #ffff00;">REACTIVITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #cccccc;">PERSONAL PROTECTION</td> <td style="text-align: center;">C</td> </tr> </table>	HEALTH	3	FLAMMABILITY	0	REACTIVITY	0	PERSONAL PROTECTION	C
HEALTH	3								
FLAMMABILITY	0								
REACTIVITY	0								
PERSONAL PROTECTION	C								

### 1. Product And Company Identification

<p><b>Supplier</b> Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States</p> <p><b>Company Contact:</b> Wayne Sher <b>Telephone Number:</b> 410-398-7200 <b>FAX Number:</b> 410-398-2918 <b>E-Mail:</b> wsher@colonialmetals.com <b>Web Site:</b> colonialmetals.com</p>	<p><b>Manufacturer</b> Colonial Metals, Inc. Building 20 505 Blue Ball Road Elkton, MD 21921 United States</p> <p><b>Company Contact:</b> Wayne Sher <b>Telephone Number:</b> 410-398-7200 <b>FAX Number:</b> 410-398-2918 <b>E-Mail:</b> wsher@colonialmetals.com <b>Web Site:</b> colonialmetals.com</p>
<p><b>Supplier Emergency Contacts &amp; Phone Number</b> Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887</p>	<p><b>Manufacturer Emergency Contacts &amp; Phone Number</b> Chemtrac: 800-424-9300 World Wide - Call COLLECT to U.S: 703-527-3887</p>

**Issue Date:** 02/10/2006

**Product Name:** Potassium Ruthenium (VII) Oxide  
**Chemical Name:** Potassium Ruthenium (VII) Oxide/Potassium Perruthenate  
**CAS Number:** 10378-50-4  
**Chemical Family:** Platinum Group Metal Salts  
**Chemical Formula:** K<sub>2</sub>RuO<sub>7</sub>  
**MSDS Number:** 8008  
**Product Code:** 8008

### 2. Composition/Information On Ingredients

Ingredient Name	CAS Number	Percent Of Total Weight
Potassium Ruthenium (VII) Oxide	10378-50-4	99 - 100

### EMERGENCY OVERVIEW

Oxidizing. Irritant.  
 Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin.



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 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

Causes skin irritation.

#### Ingestion Hazards

Irritation, nausea, diarrhea, vomiting, severe burns or ulceration of the mouth, throat, and stomach. Poisoning is unlikely on a single exposure. Does not cause serious toxic manifestations.

#### Inhalation Hazards

Causes respiratory tract irritation. May cause nose, throat, and lung irritation.

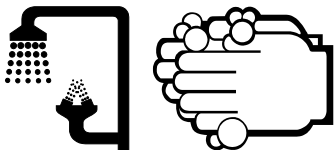
#### Conditions Aggravated By Exposure

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.

### First Aid (Pictograms)



### 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

Not expected to be a problem in industry. However if swallowed and discomfort occurs, contact a physician.



# MATERIAL SAFETY DATA SHEET

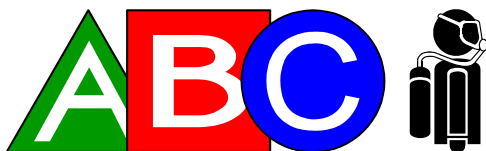
## Potassium Ruthenium (VII) Oxide

### 4. First Aid Measures - Continued

#### Inhalation

Remove to fresh air immediately. If discomfort occurs or persists, contact a physician.

### Fire Fighting (Pictograms)



### 5. Fire Fighting Measures

**Flash Point Method:** NA

**Flammability Class:** NA

#### Fire And Explosion Hazards

Use safety equipment. At elevated temperature, can emit toxic fumes of ruthenium tetroxide and which may react explosively with many organic compounds.

#### Extinguishing Media

Use water spray or carbon dioxide. Do not use organics.

#### Fire Fighting Instructions

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

### 6. Accidental Release Measures

PROCEDURE(S) OF PERSONAL PRECAUTION(S)

Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP

Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

### Handling & Storage (Pictograms)



### 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

User Exposure: Do not breathe dust. Avoid contact with eyes, skin, and clothing.



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 7. Handling And Storage - Continued

#### Storage Precautions

Suitable: Keep tightly closed. Store in a cool dry place.  
 Unsuitable: Do not store near, nor allow contact with, clothing and other combustible material.

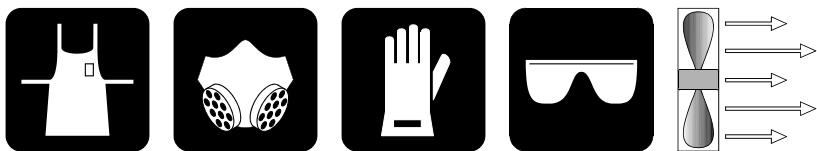
#### Work/Hygienic Practices

Use good personal hygiene. Wash thoroughly after handling. 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.

#### 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

#### 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

Dark green to black crystals

#### Odor

Odorless

**Chemical Type:** Mixture

**Physical State:** Solid



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 9. Physical And Chemical Properties - Continued

**Odor - Continued**

**Melting Point:** NE °C  
**Boiling Point:** NE °C  
**Specific Gravity:** NE  
**Molecular Weight:** 204.17  
**Vapor Pressure:** NA  
**Vapor Density:** NA  
**pH Factor:** NA  
**Solubility:** Soluble  
**Evaporation Rate:** NA

### 10. Stability And Reactivity

**Stability:** Stable  
**Hazardous Polymerization:** Will not occur

**Conditions To Avoid (Stability)**

Elevated temperature

**Incompatible Materials**

Decomposes in acid, alcohol, hot water, and may organic compounds

**Hazardous Decomposition Products**

May decompose at elevated temperature to emit ruthenium tetroxide.

**Conditions To Avoid (Polymerization)**

Will not occur.

### 11. Toxicological Information

**Acute Inhalation Effects**

Inhalation: Material is irritating to mucous membranes and upper respiratory tract.

**Miscellaneous Toxicological Information**

SIGNS AND SYMPTOMS OF EXPOSURE  
 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

### 12. Ecological Information

No Data Available...

### 13. Disposal Considerations

Place in 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.

**RCRA Information**

NL



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 14. Transport Information

**Proper Shipping Name**

Oxidizing solid, n.o.s.

**Hazard Class**

5.1

**Secondary Hazard Class**

NA

**DOT Identification Number**

1479

**DOT Shipping Label**

Oxidizer

**Freight Class**

NA

**Packaging Exceptions**

NA

**Packaging Requirements**

PG-II

**Additional Shipping Paper Description**

**IATA**

Proper Shipping Name: Oxidizing solid, n.o.s.

IATA UN Number: 1479

Hazard Class: 5.1

Packing Group: II

**DOT (Pictograms)**



**TDG - Canada (Pictograms)**



### 15. Regulatory Information

**U.S. Regulatory Information**

TSCA: For research and development use only.

**SARA Section 313 Notification**

This product does not require reporting under SARA Title 313.



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 15. Regulatory Information - Continued

#### Canadian Regulatory Information

WHMIS Classification: 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.

#### European Union (EU) Regulatory Information

Symbol of Danger: O-Xi

Indication of Danger: Oxidizing. Irritant.

R: 8-36/37/38

Risk Statements: Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin.

S: 17-26-36

Safety Statements: Keep away from combustible material. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing.

#### Other International Regulations

##### **US CLASSIFICATION AND LABEL TEXT**

Indication of Danger: Oxidizing. Irritant.

Risk Statements: Contact with combustible material may cause fire. Irritating to eyes, respiratory system and skin.

Safety Statements: Keep away from combustible material. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing, gloves, and eye/face protection.

#### WHMIS - Canada (Pictograms)



#### DSCL - Europe (Pictograms)



### 16. Other Information

#### NFPA Rating

Health: 3

Fire: 0

Reactivity: 0

Oxidizer: OX



# MATERIAL SAFETY DATA SHEET

## Potassium Ruthenium (VII) Oxide

### 16. Other Information - Continued

#### HMIS Rating

Health: 3

Fire: 0

Reactivity: 0

Personal Protection: C

#### Revision/Preparer Information

MSDS Preparer: Wayne Sher

MSDS Preparer Phone Number: 410-398-7200

This MSDS Supersedes A Previous MSDS Dated: 09/23/2003

### 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.