


# MATERIAL SAFETY DATA SHEET

## Ruthenium (III) Chloride Solution

<b>NFPA</b> 	<b>HMIS</b> <table border="1"><tr><td>HEALTH</td><td>3</td></tr><tr><td>FLAMMABILITY</td><td>0</td></tr><tr><td>REACTIVITY</td><td>1</td></tr><tr><td>PERSONAL PROTECTION</td><td>J</td></tr></table>	HEALTH	3	FLAMMABILITY	0	REACTIVITY	1	PERSONAL PROTECTION	J
HEALTH	3								
FLAMMABILITY	0								
REACTIVITY	1								
PERSONAL PROTECTION	J								

### 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:** 07/15/2008

**Product Name:** Ruthenium (III) Chloride Solution  
**CAS Number:** 14898-67-0  
**Chemical Family:** Platinum Group Metal Salts  
**Chemical Formula:** RuCl<sub>3</sub>  
**MSDS Number:** 80022  
**Product Code:** 8002-S

**Synonyms**

Ruthenium (III) Chloride

### 2. Composition/Information On Ingredients

Ingredient Name	CAS Number	Percent Of Total Weight
Ruthenium (III) Chloride	14898-67-0	1 - 25

### EMERGENCY OVERVIEW

**Can cause burns. May cause sensitization by skin contact or inhalation.**

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## Ruthenium (III) Chloride Solution

### EMERGENCY OVERVIEW - Continued

#### Hazards Identification (Pictograms)



### 3. Hazards Identification

#### Primary Routes(s) Of Entry

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

#### Eye Hazards

Exposure to liquid may cause severe burns and exposure to high concentration of hydrogen chloride gas may cause blindness.

#### Skin Hazards

Can cause redness, pain, or severe burns.

#### Ingestion Hazards

Irritation or burning pain in mouth, throat, esophagus and gastrointestinal tract. May cause nausea, vomiting, and diarrhea.

#### Inhalation Hazards

Coughing, shortness of breath, wheezing; inflammation of the nose, throat, and upper respiratory tract.

#### Conditions Aggravated By Exposure

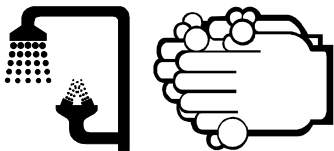
May cause irritation of the respiratory system. Maintain housekeeping and personal hygiene to minimize exposure and prevent sensitization.

#### Conditions Aggravated By Overexposure

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

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

#### First Aid (Pictograms)



### 4. First Aid Measures

#### Eye

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

#### Skin

Flush area for 15 minutes with water and wash gently with non-abrasive soap and water. If discomfort occurs or persists, contact a physician immediately. Remove contaminated clothing and shoes and wash before reuse.

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## Ruthenium (III) Chloride Solution

### 4. First Aid Measures - Continued

#### Ingestion

Not expected to be a problem in industry. However if swallowed do not induce vomiting. If victim is not breathing, perform CPR. Seek medical attention immediately.

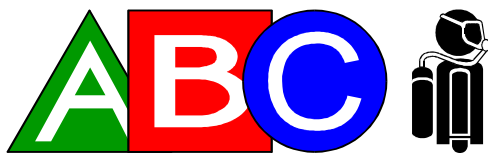
#### Inhalation

Remove to fresh air immediately. If required provide artificial respiration. If discomfort occurs or persists, contact a physician immediately.

#### Note To Physician

Treat symptomatic symptoms.

### Fire Fighting (Pictograms)



### 5. Fire Fighting Measures

**Flash Point Method:** NA

**Flammability Class:** NA

#### Fire And Explosion Hazards

Use proper safety equipment. Can decompose to emit toxic fumes of hydrogen chloride or chlorine. Acid reacts with steel and many other common metals to produce hydrogen gas, a serious fire and explosion hazard.

#### Extinguishing Media

Suitable: Noncombustible. Use appropriate media for surrounding fire conditions.

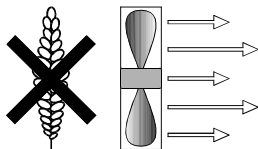
#### Fire Fighting Instructions

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

### 6. Accidental Release Measures

Evacuate area. Have emergency response team respond. Neutralize with dilute alkalies solution or use soda ash or lime. Soak up and place in sealed container for reclamation or disposal. Use proper exposure controls and personal protection equipment (See Personal Protection).

### 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.

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## Ruthenium (III) Chloride Solution

### 7. Handling And Storage - Continued

#### Storage Precautions

Store in a cool, dry place. Store in a tightly closed container. Corrosives area.

#### 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.

#### 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 with corrosive-resistant materials

Safety shower and eyebath

#### Eye/Face Protection

ANSI approved safety glasses/goggles, full face shield

#### Skin Protection

Rubber/Neoprene (use compatible chemical-resistant gloves)

#### Respiratory Protection

NIOSH approved chemical cartridge respirator for acid gas/chlorine (42 CFR part 84) and 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 brown solution

#### Odor

Hydrogen chloride odor

**Chemical Type:** Mixture

**Physical State:** Liquid

**Molecular Weight:** NA

**Vapor Pressure:** NE

**Vapor Density:** NE

# MATERIAL SAFETY DATA SHEET

## Ruthenium (III) Chloride Solution

### 9. Physical And Chemical Properties - Continued

**Odor - Continued****Solubility:** Soluble**Evaporation Rate:** NE

### 10. Stability And Reactivity

**Stability:** Stable under normal conditions and temperature**Hazardous Polymerization:** Will not occur**Conditions To Avoid (Stability)**

Hygroscopic: absorbs moisture or water from the air.

**Incompatible Materials**

Most metals, alkalis, metallic oxides, strong oxidents, and organics. Also water carbonates, cyanides, and sulfides.

**Hazardous Decomposition Products**

Hydrogen chloride, chlorine, carbon monoxide, carbon dioxide, ruthenium, oxides of ruthenium.

**Conditions To Avoid (Polymerization)**

Will not occur.

### 11. Toxicological Information

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

### 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**

Corrosive Liquid, n.o.s. (contains ruthenium (III) chloride solution)

**Hazard Class**

8

**Secondary Hazard Class**

NA

**DOT Identification Number**

1760

**DOT Shipping Label**

Corrosive

**Freight Class**

NA

**Packaging Exceptions**

See 49 CFR

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## Ruthenium (III) Chloride Solution

### 14. Transport Information - Continued

#### Packaging Requirements

PG-II

#### Additional Shipping Paper Description

IATA: Always consult IATA manual before shipping.

### 15. Regulatory Information

No Data Available...

### 16. Other Information

#### NFPA Rating

Health: 3

Fire: 0

Reactivity: 1

Other: COR

#### HMIS Rating

Health: 3

Fire: 0

Reactivity: 1

Personal Protection: J

#### Revision/Preparer Information

MSDS Preparer: Joseph J. Fittos III

MSDS Preparer Phone Number: 410-398-7200

### 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.

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