

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** Chloro(1,5-cyclooctadiene)(pentamethylcyclopentadienyl)ruthenium(II)

**Product Code:** RU-OMX-01-C

**CAS Number:** 92390-26-6

**Relevant identified uses of the substance:** Scientific research and development

Supplier details:

American Elements  
10884 Weyburn Ave.  
Los Angeles, CA 90024  
Tel: +1 310-208-0551  
Fax: +1 310-208-0351  
Emergency telephone number:  
+1 800-424-9300

## SECTION 2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Substances/mixtures which, in contact with water, emit flammable gases Category 2

Label Elements

Signal Word

Danger

Hazard Statements

In contact with water releases flammable gas



Precautionary Statements

Prevention

Keep away from any possible contact with water, because of violent reaction and possible flash fire

Handle under inert gas. Protect from moisture

Wear protective gloves/protective clothing/eye protection/face protection

Skin

Brush off loose particles from skin. Immerse in cool water/wrap with wet bandages

Fire

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction  
Storage  
Store in a dry place. Store in a closed container  
Disposal  
Dispose of contents/container to an approved waste disposal plant  
Hazards not otherwise classified (HNOC)  
None identified

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### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component / CAS-No / Weight %  
Chloro(1,5-cyclooctadiene)(pentamethylcyclopentadienyl)ruthenium(II) / 92390-26-6 / <=100

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### SECTION 4. FIRST AID MEASURES

General Advice  
If symptoms persist, call a physician.  
Eye Contact  
Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.  
Skin Contact  
Wash off immediately with plenty of water for at least 15 minutes. If skin irritation persists, call a physician.  
Inhalation  
Remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms occur.  
Ingestion  
Clean mouth with water and drink afterwards plenty of water. Get medical attention if symptoms occur.  
Most important symptoms and effects  
None reasonably foreseeable.  
Notes to Physician Treat symptomatically

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### SECTION 5. FIREFIGHTING MEASURES

Unsuitable Extinguishing Media No information available  
Flash Point No information available  
Method - No information available  
Autoignition Temperature No information available  
Explosion Limits  
Upper No data available  
Lower No data available  
Sensitivity to Mechanical Impact No information available  
Sensitivity to Static Discharge No information available  
Specific Hazards Arising from the Chemical  
Keep product and empty container away from heat and sources of ignition.  
Hazardous Combustion Products  
Carbon monoxide (CO). Carbon dioxide (CO<sub>2</sub>). Hydrogen chloride. Metal oxides.  
Protective Equipment and Precautions for Firefighters  
As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA  
Health - 0  
Flammability - 2  
Instability - 2  
Physical hazards - W

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## **SECTION 6. ACCIDENTAL RELEASE MEASURES**

### **Personal Precautions**

Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.

### **Environmental Precautions**

Should not be released into the environment. See Section 12 for additional Ecological Information. Do not allow material to contaminate ground water system. Do not flush into surface water or sanitary sewer system.

### **Methods for Containment and Clean Up**

Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal.

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## **SECTION 7. HANDLING AND STORAGE**

### **Handling**

Wear personal protective equipment/face protection. Ensure adequate ventilation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

### **Storage**

Store in freezer

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## **SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

### **Exposure Guidelines**

This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

### **Engineering Measures**

Ensure adequate ventilation, especially in confined areas.

### **Personal Protective Equipment**

#### **Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

#### **Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

#### **Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

#### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State Solid Crystalline  
Appearance Yellow Brown  
Odor No information available  
Odor Threshold No information available  
pH No information available  
Melting Point/Range 143 - 147 °C / 289.4 - 296.6 °F  
Boiling Point/Range No information available  
Flash Point No information available  
Evaporation Rate Not applicable  
Flammability (solid,gas) No information available  
Flammability or explosive limits  
Upper No data available  
Lower No data available  
Vapor Pressure No information available  
Vapor Density Not applicable  
Specific Gravity No information available  
Solubility No information available  
Partition coefficient; n-octanol/water No data available  
Autoignition Temperature No information available  
Decomposition Temperature No information available  
Viscosity Not applicable  
Molecular Formula C<sub>18</sub>H<sub>27</sub>ClRu  
Molecular Weight 379.94

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## SECTION 10. STABILITY AND REACTIVITY

Reactive Hazard Yes  
Stability Store under inert atmosphere.  
Conditions to Avoid Incompatible products.  
Incompatible Materials Strong oxidizing agents  
Hazardous Decomposition Products Carbon monoxide (CO), Carbon dioxide (CO<sub>2</sub>), Hydrogen chloride, Metal oxides  
Hazardous Polymerization Hazardous polymerization does not occur.  
Hazardous Reactions None under normal processing.

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## SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity  
Product Information  
Component Information  
Toxicologically Synergistic  
Products  
No information available  
Delayed and immediate effects as well as chronic effects from short and long-term exposure  
Irritation No information available  
Sensitization No information available  
Mutagenic Effects No information available  
Reproductive Effects No information available. Developmental Effects No information available.  
Teratogenicity No information available. STOT - single exposure None known  
STOT - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed

No information available

Endocrine Disruptor Information No information available

Other Adverse Effects The toxicological properties have not been fully investigated.

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## SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

Persistence and Degradability May persist

Bioaccumulation/ Accumulation No information available.

Mobility No information available

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## SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification

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## SECTION 14. TRANSPORT INFORMATION

DOT

UN-No UN3395

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE

Technical Name (Chloro(1,5-cyclooctadiene)(pentamethylcyclopentadienyl)ruthenium(II))

Hazard Class 4.3

Packing Group II

TDG

UN-No UN3395

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE

Hazard Class 4.3

Packing Group II

IATA

UN-No UN3395

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE\* Hazard Class 4.3

Packing Group II

IMDG/IMO

UN-No UN3395

Proper Shipping Name ORGANOMETALLIC SUBSTANCE, SOLID, WATER-REACTIVE

Hazard Class 4.3

Packing Group II

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## SECTION 15. REGULATORY INFORMATION

U.S. Federal Regulations

SARA 313 Not applicable

SARA 311/312 Hazard Categories See section 2 for more information

CWA (Clean Water Act) Not applicable

Clean Air Act Not applicable

OSHA - Occupational Safety and

Health Administration

Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals. U.S. State

Right-to-Know

Regulations

Not applicable

U.S. Department of Transportation

Reportable Quantity (RQ): N

DOT Marine Pollutant N

DOT Severe Marine Pollutant N

U.S. Department of Homeland

Security

This product does not contain any DHS chemicals. Other International Regulations

Mexico - Grade No information available

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## 16. OTHER INFORMATION

Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH). The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. American Elements shall not be held liable for any damage resulting from handling or from contact with the above product. See reverse side of invoice or packing slip for additional terms and conditions of sale. COPYRIGHT 1997-2022 AMERICAN ELEMENTS. LICENSED GRANTED TO MAKE UNLIMITED PAPER COPIES FOR INTERNAL USE ONLY.