

# SAFETY DATA SHEET

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## SECTION 1. IDENTIFICATION

**Product Identifier:** (4N) 99.99% Ruthenium(III) Chloride Trihydrate

**Product Code:** RU-CL-04-C.3HYD

**CAS Number:** 13815-94-6

**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 of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin corrosion (Category 1B), H314

Serious eye damage (Category 1), H318

GHS Label elements, including precautionary statements

Pictogram



Signal word: Danger

Hazard statement(s)

H314

Causes severe skin burns and eye damage.

Precautionary statement(s)

P260

Do not breathe dust or mist.

P264

Wash skin thoroughly after handling.

P280

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

P301 + P330 + P331

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353

IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310

Immediately call a POISON CENTER or doctor/ physician.

P321

Specific treatment (see supplemental first aid instructions on this label).

P363

Wash contaminated clothing before reuse.

P405

Store locked up.

P501

Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS - none

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## **SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS**

Substances

Formula:  $\text{Cl}_3\text{Ru} \cdot 3\text{H}_2\text{O}$

Molecular Weight: 261.47 g/mol

CAS-No.: 13815-94-6

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## **SECTION 4. FIRST AID MEASURES**

Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance.

Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water.

Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of any immediate medical attention and special treatment needed  
no data available

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## **SECTION 5. FIREFIGHTING MEASURES**

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Special hazards arising from the substance or mixture

Hydrogen chloride gas, Ruthenium oxide

Advice for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Further information

The product itself does not burn

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

Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing Vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

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

Precautions for safe handling

Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place.

Air sensitive. hygroscopic

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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

Control parameters

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate

government standards such as NIOSH (US) or EN 166(EU).

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices.

Wash and dry hands.

Body Protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type

N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Do not let product enter drains.

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## SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form: solid

Odor: no data available

Odor Threshold: no data available

pH: no data available

Melting point/freezing point: no data available

Initial boiling point and boiling range: no data available

Flash point: not applicable

Evaporation rate: no data available

Flammability (solid, gas): no data available

Upper/lower flammability or explosive limits: no data available

Vapor pressure: no data available

Vapor density: no data available

Relative density: no data available

Water solubility: no data available

Partition coefficient: n-octanol/water: no data available

Auto-ignition temperature: no data available

Decomposition temperature: no data available

Viscosity: no data available

Explosive properties: no data available

Oxidizing properties: no data available

Other safety information: no data available

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## SECTION 10. STABILITY AND REACTIVITY

Reactivity

no data available

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

no data available

Incompatible materials

Zinc

Hazardous decomposition products

Other decomposition products-no data available

In the event of fire: see section 5

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## SECTION 11. TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute toxicity

no data available

Inhalation:

no data available

Dermal:

no data available

no data available

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

no data available

Carcinogenicity

IARC:

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP:

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA:

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

no data available

no data available

Specific target organ toxicity -single exposure

no data available  
Specific target organ toxicity -repeated exposure  
no data available  
Aspiration hazard  
no data available  
Additional Information  
RTECS: Not available

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## **SECTION 12. ECOLOGICAL INFORMATION**

Toxicity  
no data available  
Persistence and degradability  
no data available  
Bioaccumulative potential  
no data available  
Mobility in soil  
no data available  
Results of PBT and vPvB assessment  
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted  
Other adverse effects  
no data available

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## **SECTION 13. DISPOSAL CONSIDERATIONS**

Waste treatment methods  
Product  
Offer surplus and non-recyclable solutions to a licensed disposal company.  
Contact a licensed professional waste disposal service to dispose of this material.  
Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.  
Contaminated packaging  
Dispose of as unused product.

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## **SECTION 14. TRANSPORT INFORMATION**

DOT (US)  
UN number: 3260  
Class: 8  
Packing group: II  
Proper shipping name:  
Corrosive solid, acidic, inorganic, n.o.s. (Ruthenium(III) chloride trihydrate)  
Marine pollutant: No  
Poison Inhalation Hazard: No  
IMDG  
UN number: 3260  
Class: 8  
Packing group: II  
EMS-No: F-A, S-B  
Proper shipping name:

CORROSIVE SOLID, ACIDIC, INORGANIC, N.O.S. (Ruthenium(III) chloride trihydrate)  
Marine pollutant: No  
IATAUN number: 3260  
Class: 8  
Packing group: II  
Proper shipping name: Corrosive solid, acidic, inorganic, n.o.s. (Ruthenium(III) chloride trihydrate)

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## SECTION 15. REGULATORY INFORMATION

SARA 302

Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313

Components

SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312

Hazards

Acute Health Hazard

Massachusetts Right To Know

Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know

Components

Ruthenium(III) chloride trihydrate

CAS-No.

13815-94-6

Revision Date

New Jersey Right To Know

Components

Ruthenium(III) chloride trihydrate

CAS-No.13815-94-6

Revision Date

California Prop. 65

Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm

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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.