

1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ammonium hexachlororuthenate(IV)
 Product Number : 334464
 Brand : Aldrich
 Company : Sigma-Aldrich
 3050 Spruce Street
 SAINT LOUIS MO 63103
 USA
 Telephone : +18003255832
 Fax : +18003255052
 Emergency Phone # : (314) 776-6555

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

GHS Label elements, including precautionary statements

Pictogram



Signal word : Danger

Hazard statement(s)

H301 + H311 : Toxic if swallowed or in contact with skin.
 H331 : Toxic if inhaled.

Precautionary statement(s)

P261 : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
 P280 : Wear protective gloves/ protective clothing.
 P301 + P310 : IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
 P311 : Call a POISON CENTER or doctor/ physician.

HMIS Classification

Health hazard: 2
 Flammability: 0
 Physical hazards: 0

NFPA Rating

Health hazard: 2
 Fire: 0
 Reactivity Hazard: 0

Potential Health Effects

Inhalation : Toxic if inhaled. May cause respiratory tract irritation.
Skin : Toxic if absorbed through skin. May cause skin irritation.
Eyes : May cause eye irritation.
Ingestion : Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Ruthenium(IV)-ammonium chloride

Formula : $\text{H}_8\text{Cl}_6\text{N}_2\text{Ru}$
Molecular Weight : 349.86 g/mol

CAS-No.	EC-No.	Index-No.	Concentration
Ruthenium(IV)-ammonium chloride			
18746-63-9	242-552-7	-	-

4. 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

Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for fire-fighters

Wear self contained breathing apparatus for fire fighting if necessary.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. 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.

7. HANDLING AND STORAGE

Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

Conditions for safe storage

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

Keep in a dry place.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N99 (US) or type P2 (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).

Hand 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.

Eye 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 and 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.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	powder
Colour	dark brown

Safety data

pH	no data available
Melting point	no data available
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Water solubility	no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Conditions to avoid

no data available

Materials to avoid

Strong oxidizing agents

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NOx), Hydrogen chloride gas, Ruthenium oxide

11. TOXICOLOGICAL INFORMATION

Acute toxicity

LD50 Oral - rat - 200 mg/kg

Skin corrosion/irritation

no data available

Serious eye damage/eye irritation

no data available

Respiratory or skin sensitization

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

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	Toxic if inhaled. May cause respiratory tract irritation.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. May cause skin irritation.
Eyes	May cause eye irritation.

Additional Information

12. ECOLOGICAL INFORMATION**Toxicity**

no data available

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

no data available

13. DISPOSAL CONSIDERATIONS

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.

14. TRANSPORT INFORMATION

DOT (US)

UN-Number: 3288 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, inorganic, n.o.s. (Ruthenium(IV)-ammonium chloride)
Marine pollutant: No
Poison Inhalation Hazard: No

IMDG

UN-Number: 3288 Class: 6.1 Packing group: III EMS-No: F-A, S-A
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Ruthenium(IV)-ammonium chloride)
Marine pollutant: No

IATA

UN-Number: 3288 Class: 6.1 Packing group: III
Proper shipping name: Toxic solid, inorganic, n.o.s. (Ruthenium(IV)-ammonium chloride)

15. REGULATORY INFORMATION

OSHA Hazards

Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption

DSL Status

This product contains the following components listed on the Canadian NDSL list. All other components are on the Canadian DSL list.

Ruthenium(IV)-ammonium chloride	CAS-No. 18746-63-9
---------------------------------	-----------------------

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(IV)-ammonium chloride	CAS-No. 18746-63-9	Revision Date
---------------------------------	-----------------------	---------------

New Jersey Right To Know Components

Ruthenium(IV)-ammonium chloride	CAS-No. 18746-63-9	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.

16. OTHER INFORMATION

Further information

Copyright 2010 Sigma-Aldrich Co. License granted to make unlimited paper copies for internal use only.

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. Sigma-Aldrich Co., 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.
