

## SAFETY DATA SHEET

Creation Date 08-Nov-2010

Revision Date 24-Sep-2021

Revision Number 3

### 1. Identification

**Product Name** Ruthenium(IV) oxide hydrate, Premion®

**Cat No. :** 43403

**CAS No** 32740-79-7

**Synonyms** No information available

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

#### Details of the supplier of the safety data sheet

##### Company

Alfa Aesar  
Thermo Fisher Scientific Chemicals, Inc.  
30 Bond Street  
Ward Hill, MA 01835-8099  
Tel: 800-343-0660  
Fax: 800-322-4757  
**Email:** tech@alfa.com  
www.alfa.com

##### **Emergency Telephone Number**

During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660.  
After normal business hours, call Carechem 24 at (866) 928-0789.

### 2. Hazard(s) identification

#### **Classification**

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

Oxidizing solids

Category 2

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

May intensify fire; oxidizer

**Precautionary Statements****Prevention**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking

Keep/Store away from clothing/ other combustible materials

Take any precaution to avoid mixing with combustibles

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

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

None identified

### 3. Composition/Information on Ingredients

| Component                   | CAS No     | Weight % |
|-----------------------------|------------|----------|
| ruthenium(IV) oxide hydrate | 32740-79-7 | <=100    |
| Ruthenium oxide             | 12036-10-1 | -        |

### 4. First-aid measures

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

### 5. Fire-fighting measures

|                                       |  |
|---------------------------------------|--|
| <b>Suitable Extinguishing Media</b>   | Water spray. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Chemical foam. |
| <b>Unsuitable Extinguishing Media</b> | No information available   |
| <b>Flash Point</b>                    | No information available   |
| <b>Method -</b>                       | No information available   |

|   |                          |
|---|--------------------------|
| <b>Autoignition Temperature</b>         | No information available |
| <b>Explosion Limits</b>                 |                          |
| <b>Upper</b>                            | No data available        |
| <b>Lower</b>                            | No data available        |
| <b>Sensitivity to Mechanical Impact</b> | No information available |
| <b>Sensitivity to Static Discharge</b>  | No information available |

**Specific Hazards Arising from the Chemical**

Keep product and empty container away from heat and sources of ignition.

**Hazardous Combustion Products**

None known.

**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**  
2

**Flammability**  
0

**Instability**  
0

**Physical hazards**  
OX

## 6. Accidental release measures

|   |  |
|---|--|
| <b>Personal Precautions</b>                 | Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.            |
| <b>Environmental Precautions</b>            | Should not be released into the environment.   |
| <b>Methods for Containment and Clean Up</b> | Sweep up and shovel into suitable containers for disposal. Keep in suitable, closed containers for disposal. |

## 7. Handling and storage

|                 |   |
|-----------------|---|
| <b>Handling</b> | Ensure adequate ventilation. Wear personal protective equipment/face protection. Avoid dust formation. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. |
| <b>Storage.</b> | Keep in a dry, cool and well-ventilated place. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents. Alcohols. Metals.                                    |

## 8. Exposure controls / personal protection

|                                      |   |
|--------------------------------------|---|
| <b>Exposure Guidelines</b>           | This product does not contain any hazardous materials with occupational exposure limit established by the region specific regulatory bodies.  |
| <b>Engineering Measures</b>          | Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.   |
| <b>Personal Protective Equipment</b> |   |
| <b>Eye/face Protection</b>           | 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.   |
| <b>Skin and body protection</b>      | Wear appropriate protective gloves and clothing to prevent skin exposure.   |
| <b>Respiratory Protection</b>        | 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. |
| <b>Hygiene Measures</b>              | Handle in accordance with good industrial hygiene and safety practice.  |

## 9. Physical and chemical properties

|  |  |
|--|--|
| Physical State                         | Powder Solid                           |
| Appearance                             | Black                                  |
| Odor                                   | Odorless                               |
| Odor Threshold                         | No information available               |
| pH                                     | Not applicable                         |
| Melting Point/Range                    | No data available                      |
| 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                             | insoluble                              |
| Partition coefficient; n-octanol/water | No data available                      |
| Autoignition Temperature               | No information available               |
| Decomposition Temperature              | > 75°C                                 |
| Viscosity                              | Not applicable                         |
| Molecular Formula                      | O <sub>2</sub> Ru . x H <sub>2</sub> O |
| Molecular Weight                       | 133.07                                 |

## 10. Stability and reactivity

|                                  |   |
|----------------------------------|---|
| Reactive Hazard                  | Yes                                       |
| Stability                        | Stable under normal conditions.           |
| Conditions to Avoid              | Incompatible products.                    |
| Incompatible Materials           | Strong oxidizing agents, Alcohols, Metals |
| Hazardous Decomposition Products | None under normal use conditions          |
| Hazardous Polymerization         | Hazardous polymerization does not occur.  |
| Hazardous Reactions              | None under normal processing.             |

## 11. Toxicological information

### Acute Toxicity

|                       |   |
|-----------------------|---|
| Product Information   | No acute toxicity information is available for this product |
| Component Information |   |

| Component       | LD50 Oral                 | LD50 Dermal | LC50 Inhalation |
|-----------------|---------------------------|-------------|-----------------|
| Ruthenium oxide | LD50 = 4580 mg/kg ( Rat ) | Not listed  | Not listed      |

|                                      |                          |
|--------------------------------------|--------------------------|
| Toxicologically Synergistic Products | No information available |
|--------------------------------------|--------------------------|

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                 |  |
|-----------------|--|
| Irritation      | Irritating to eyes and skin  |
| Sensitization   | No information available   |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component                   | CAS No     | IARC       | NTP        | ACGIH      | OSHA       | Mexico     |
|-----------------------------|------------|------------|------------|------------|------------|------------|
| ruthenium(IV) oxide hydrate | 32740-79-7 | Not listed | Not listed | Not listed | Not listed | Not listed |
| Ruthenium oxide             | 12036-10-1 | Not listed | Not listed | Not listed | Not listed | Not listed |

**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.

## 12. Ecological information

### Ecotoxicity

Do not empty into drains.

**Persistence and Degradability** Insoluble in water

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Is not likely mobile in the environment due its low water solubility.

## 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.

## 14. Transport information

### DOT

UN-No UN1479  
 Proper Shipping Name OXIDIZING SOLID, N.O.S.  
 Technical Name ruthenium(IV) oxide hydrate  
 Hazard Class 5.1  
 Packing Group II

### TDG

UN-No UN1479  
 Proper Shipping Name OXIDIZING SOLID, N.O.S.  
 Technical Name ruthenium(IV) oxide hydrate  
 Hazard Class 5.1  
 Packing Group II

### IATA

UN-No UN1479  
 Proper Shipping Name OXIDIZING SOLID, N.O.S.  
 Technical Name ruthenium(IV) oxide hydrate  
 Hazard Class 5.1  
 Packing Group II

### IMDG/IMO

|                             |                             |
|-----------------------------|-----------------------------|
| <b>UN-No</b>                | UN1479                      |
| <b>Proper Shipping Name</b> | OXIDIZING SOLID, N.O.S.     |
| <b>Technical Name</b>       | ruthenium(IV) oxide hydrate |
| <b>Hazard Class</b>         | 5.1                         |
| <b>Packing Group</b>        | II                          |

## 15. Regulatory information

### United States of America Inventory

| Component                   | CAS No     | TSCA | TSCA Inventory notification - Active/Inactive | TSCA - EPA Regulatory Flags |
|-----------------------------|------------|------|---|-----------------------------|
| ruthenium(IV) oxide hydrate | 32740-79-7 | -    | -   | -                           |
| Ruthenium oxide             | 12036-10-1 | X    | ACTIVE  | -                           |

#### Legend:

**TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

'-' - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable

### International Inventories

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), China (IECSC), Korea (KECL).

| Component                   | CAS No     | DSL | NDL | EINECS    | PICCS | ENCS | ISHL | AICS | IECSC | KECL     |
|-----------------------------|------------|-----|-----|-----------|-------|------|------|------|-------|----------|
| ruthenium(IV) oxide hydrate | 32740-79-7 | -   | -   | -         | -     | -    | -    | -    | X     | -        |
| Ruthenium oxide             | 12036-10-1 | X   | -   | 234-840-6 | X     | X    | X    | X    | X     | KE-30673 |

### 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

## 16. Other information

**Prepared By**

Health, Safety and Environmental Department

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24-Sep-2021

**Revision Summary**

SDS authoring systems update, replaces ChemGes SDS No. 32740-79-7/2.

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**