

# Safety Data Sheet

acc. to OSHA HCS

Printing date 10/06/2023

Reviewed on 10/06/2023

## 1 Identification

### · Product identifier

· Trade name: Uranyl acetate-2H<sub>2</sub>O

· Article number: 77870

· CAS Number:

6159-44-0

· Index number:

092-002-00-3

· Application of the substance / the mixture:

Laboratory chemicals

Reagent for volumetric determination of phosphoric acid

Reagent for the quantitative determination of sodium

Contrast agent for electron microscopy

· Details of the supplier of the safety data sheet

· Manufacturer/Supplier:

SERVA Electrophoresis GmbH

Carl-Benz-Str. 7

D-69115 Heidelberg

Tel.: +49 6221 13840-0

FAX: +49 6221 13840-10

msds.info@serva.de

· Information department: Product Safety Department Tel.: +49 6221 13840-35

· Emergency telephone number:

Emergency medical information in case of poisoning

Poison Information Center Mainz-Tel: +49 (0) 6131 19240

(Advice in German and English)

**SERVA**  
serving scientists

## 2 Hazard(s) identification

· Classification of the substance or mixture



GHS06

Acute Toxicity - Oral 2

H300 Fatal if swallowed.

Acute Toxicity - Inhalation 2

H330 Fatal if inhaled.



GHS08

Specific Target Organ Toxicity - Repeated Exposure 2 H373 May cause damage to organs through prolonged or repeated exposure.

· Label elements

· GHS label elements

The substance is classified and labeled according to the Globally Harmonized System (GHS).

· Hazard pictograms: GHS06, GHS08

· Signal word: Danger

· Hazard statements:

Fatal if swallowed or if inhaled.

May cause damage to organs through prolonged or repeated exposure.

· Precautionary statements

Do not breathe dust.

Avoid release to the environment.

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Wear respiratory protection.

If swallowed: Immediately call a poison center/doctor.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Get medical advice/attention if you feel unwell.

· **Classification system:**· **NFPA ratings (scale 0 - 4)**

Health = 4

Fire = 0

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 4

Fire = 0

Reactivity = 0

· **Other hazards**· **Results of PBT and vPvB assessment:**· **PBT:** PBT - Assessment not available.· **vPvB:** vPvB - Assessment not available.

## 3 Composition/information on ingredients

· **Chemical characterization: Substances**· **CAS No. Description:**

6159-44-0 Bis(acetato-O)dioxouranium

· **Identification number(s):**· **Index number:** 092-002-00-3· **Additional information:** The product is made exclusively from depleted uranium U-238.· **Description:**· **Empirical formula:** (C H<sub>3</sub> C O O)<sub>2</sub> U O<sub>2</sub> \* 2 H<sub>2</sub>O· **MW:** 424.20

## 4 First-aid measures

· **Description of first aid measures**· **General information:**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing have been completely removed.

· **After inhalation:** Supply fresh air or oxygen; call for doctor.· **After skin contact:**

Immediate wash with copious amounts of water and soap; rinse thoroughly; seek medical advice.

· **After eye contact:**

Rinse opened eye for several minutes with running water. Remove existing contact lenses, if possible, and continue rinsing. Consult an ophthalmologist immediately.

· **After swallowing:**

Rinse out mouth. Call a doctor immediately.

Do not induce vomiting!

· **Most important symptoms and effects, both acute and delayed** No further relevant information available.· **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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### 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**  
CO<sub>2</sub> extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture**  
In case of fire formation of toxic vapours and gases is possible.  
In case of fire, the following can be released:  
Carbon monoxide and carbon dioxide  
uranium oxides
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained breathing apparatus.

### 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Wear protective clothing.  
Ensure adequate ventilation  
Avoid formation of dust.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up**  
Dispose contaminated material as waste according to section 13.  
Pick up mechanically.
- **Protective Action Criteria for Chemicals**
- **PAC-1:** Substance is not listed.
- **PAC-2:** Substance is not listed.
- **PAC-3:** Substance is not listed.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### 7 Handling and storage

- **Precautions for safe handling:**  
Carry out filling operations only at sites with extractors available.  
Restrict the quantity stored at the work place.  
Avoid contact with eyes and skin.  
Thorough dedusting.  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.
- **Information about protection against explosions and fires:** No special measures required.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in unopened original receptacles.
- **Information about storage in one common storage facility:** Separate storage is required.
- **Further information about storage conditions:**  
Store under lock and key and with access restricted to technical experts or their assistants only.  
Store container tightly closed and dry.
- **Specific end use(s):** No further relevant information available.

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## 8 Exposure controls/personal protection

### · Control parameters

#### · Components with limit values that require monitoring at the workplace:

##### 6159-44-0 Bis(acetato-O)dioxouranium (80-100%)

PEL	Long-term value: 0.05* 0.25** mg/m <sup>3</sup> as U; *soluble; **insoluble
REL	Short-term value: 0.6** mg/m <sup>3</sup> Long-term value: 0.05* 0.2** mg/m <sup>3</sup> as U; *soluble**insoluble; See Pocket Guide App.A
TLV	Short-term value: 0.6 mg/m <sup>3</sup> Long-term value: 0.2 mg/m <sup>3</sup> as U; A1, BEI

· **Additional information:** The lists that were valid during the creation were used as basis.

### · Exposure controls

· **Additional information about design of technical systems:** No further data; see section 7.

### · Personal protective equipment:

#### · General protective and hygienic measures:

Keep away from foodstuffs, beverages and feed.

Store protective clothing separately.

Use skin protection cream for skin protection.

Avoid contact with the eyes and skin.

Immediately remove all soiled and contaminated clothing.

Clean skin thoroughly immediately after handling the product.

Wash hands before breaks and at the end of work.

### · Breathing equipment:

Short term filter device:

Filter P3

### · Protection of hands:

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

### · Material of gloves:

Neoprene gloves

Nitrile rubber, NBR

Butyl rubber, BR

Fluorocarbon rubber (Viton)

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

### · Penetration time of glove material:

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

### · Eye protection: Safety glasses

### · Body protection: Protective work clothing

## 9 Physical and chemical properties

### · Information on basic physical and chemical properties

#### · General Information:

· **Color:** Yellow

· **Odor:** uncharacteristic

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· <b>Odor threshold:</b>	Not determined.
· <b>Melting point/Melting range:</b>	not applicable (decomposition)
· <b>Boiling point/Boiling range:</b>	not applicable (decomposition)
· <b>Flammability (solid, gaseous):</b>	No information available
· <b>Explosion limits:</b>	
· <b>Lower:</b>	No information available
· <b>Upper:</b>	No information available
· <b>Flash point:</b>	No information available
· <b>Decomposition temperature:</b>	275 °C (527 °F)
· <b>Viscosity:</b>	
· <b>Kinematic viscosity:</b>	No information available
· <b>Dynamic viscosity:</b>	No information available
· <b>Solubility in / Miscibility with:</b>	
· <b>Water:</b>	Soluble.
· <b>Partition coefficient (n-octanol/water):</b>	No information available
· <b>Vapor pressure:</b>	No information available
· <b>Vapor pressure:</b>	
· <b>Density at 20 °C (68 °F):</b>	2.89 g/cm <sup>3</sup> (24.11705 lbs/gal)
· <b>Relative density:</b>	No information available
· <b>Other information</b>	Further physicochemical data are not available.
· <b>Appearance:</b>	
· <b>Form:</b>	Powder
· <b>Important information on protection of health and environment, and on safety:</b>	
· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
· <b>Molecular weight</b>	424.2 g/mol

## 10 Stability and reactivity

- **Reactivity:** No further relevant information available.
- **Chemical stability:**
- **Thermal decomposition / conditions to be avoided:** Loss of constitutional water on heating.
- **Possibility of hazardous reactions:** No further relevant information available.
- **Conditions to avoid:** Humidity
- **Incompatible materials:** Avoid contact with strong oxidizing agents and reducing agents.
- **Hazardous decomposition products:** In case of fire: see section 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:** Fatal if swallowed or if inhaled.

### · LD/LC50 values that are relevant for classification:

Oral	LD50	204 mg/kg (rat)
------	------	-----------------

- **Specific target organ toxicity - repeated exposure:**  
May cause damage to organs through prolonged or repeated exposure.
- **Additional toxicological information:**
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer)** Substance is not listed.
- **NTP (National Toxicology Program)** Substance is not listed.
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

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## 12 Ecological information

- **Toxicity:**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability:** No further relevant information available.
- **Other information:** specific radioactivity: 0,384 µCi/g
- **Bioaccumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Results of PBT and vPvB assessment:**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects:**
- **Remark:** Toxic to aquatic life with long lasting effects.
- **Additional ecological information:**
- **General notes:**  
Do not allow product to reach ground water, water course or sewage system.  
Water hazard class 3 (Assessment by list): extremely hazardous for water

## 13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**  
Must be specially treated adhering to official regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:**  
Uncleaned packaging must be disposed of in the same way as the product in accordance with official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

- |   |   |
|---|---|
| · <b>UN-Number</b>  | UN2910  |
| · <b>DOT, ADR, IMDG, IATA</b>   |   |
| · <b>UN proper shipping name</b>  | Radioactive material, excepted package-limited quantity of material                                   |
| · <b>DOT</b>  |   |
| · <b>ADR</b>  | 2910 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL, ENVIRONMENTALLY HAZARDOUS |
| · <b>IMDG, IATA</b>   | RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL                                 |
| · <b>Transport hazard class(es)</b>   |   |
| · <b>DOT, IMDG, IATA</b>  |   |
|  |   |
| · <b>Class</b>  | 7 Radioactive material  |

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· <b>Label</b>	7
· <b>ADR</b>	
	
· <b>Class:</b>	7 Radioactive material
· <b>Label:</b>	7
· <b>Packing group</b>	
· <b>ADR, IMDG, IATA</b>	Void
· <b>Environmental hazards</b>	Environmentally hazardous substance, solid
· <b>Special marking (ADR):</b>	Symbol (fish and tree)
· <b>Special precautions for user</b>	Warning: Radioactive material
· <b>Hazard identification number (Kemler code):</b>	-
· <b>EMS Number:</b>	F-I,S-S
· <b>Stowage Category</b>	A
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>Transport/Additional information:</b>	
· <b>ADR</b>	
· <b>Excepted quantities (EQ)</b>	Code: E0 Not permitted as Excepted Quantity
· <b>IMDG</b>	
· <b>Limited quantities (LQ)</b>	0
· <b>Excepted quantities (EQ)</b>	Code: E0 Not permitted as Excepted Quantity
· <b>UN "Model Regulation":</b>	UN 2910 RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL, 7, ENVIRONMENTALLY HAZARDOUS

## 15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Section 355 (extremely hazardous substances):** Substance is not listed.
- **Section 313 (Specific toxic chemical listings):** Substance is not listed.
- **TSCA (Toxic Substances Control Act):** Substance is not listed.
- **Hazardous Air Pollutants** Substance is not listed.
- **Proposition 65** Substance is not listed.
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenicity categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value)** A1
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is listed.
- **GHS label elements**  
The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms** GHS06, GHS08
- **Signal word** Danger

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- **Hazard statements**

- Fatal if swallowed or if inhaled.

- May cause damage to organs through prolonged or repeated exposure.

- **Precautionary statements**

- Do not breathe dust.

- Avoid release to the environment.

- Wear respiratory protection.

- If swallowed: Immediately call a poison center/doctor.

- IF INHALED: Remove person to fresh air and keep comfortable for breathing.

- Get medical advice/attention if you feel unwell.

- **National regulations:**

- **Information about limitation of use:** Employment restrictions concerning young persons must be observed.

- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Product Safety Department

- **Contact:** +49 6221 13840-35

- **Date of preparation / last revision** 10/06/2023

- **Abbreviations and acronyms:**

- RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

- ICAO: International Civil Aviation Organisation

- PBT: persistent, bioaccumulative, toxic substance (REACH)

- vPvB: very persistent, very bioaccumulative substance (REACH)

- REACH: Regulation concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals

- CLP: Regulation on classification, labelling and packaging of substances and mixtures

- bw: body weight

- ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)

- IMDG: International Maritime Code for Dangerous Goods

- DOT: US Department of Transportation

- IATA: International Air Transport Association

- CAS: Chemical Abstracts Service (division of the American Chemical Society)

- NFPA: National Fire Protection Association (USA)

- HMIS: Hazardous Materials Identification System (USA)

- LC50: Lethal concentration, 50 percent

- LD50: Lethal dose, 50 percent

- PBT: Persistent, Bioaccumulative and Toxic

- vPvB: very Persistent and very Bioaccumulative

- NIOSH: National Institute for Occupational Safety

- OSHA: Occupational Safety & Health

- TLV: Threshold Limit Value

- PEL: Permissible Exposure Limit

- REL: Recommended Exposure Limit

- Acute Toxicity - Oral 2: Acute toxicity – Category 2

- Specific Target Organ Toxicity - Repeated Exposure 2: Specific target organ toxicity (repeated exposure) – Category 2