Material Safety Data Sheet

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Version 1.0
According to 91/155/EEC

Classified as Hazardous according to the criteria of EU Annex 1 and NOHSC.

1 - Product and Company Information

Product Name	URANYL ACETATE DIHYDRATE
Product Number	73943
Company	Sigma-Aldrich Pty, Ltd Unit 2, 14 Anella Avenue Castle Hill NSW 1765 Australia
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2 - Composition/Information on Ingredients

Product Name	CAS #	EC no	Annex I Index Number
URANYL ACETATE DIHYDRATE	6159-44-0	208-767-5	092-002-00-3

Formula	C4H6O6U.2H2O
Molecular Weight	424.15 AMU
Synonyms	Bis(aceto)dioxouranium dihydrate * Bis(aceto-O)dioxouranium dihydrate * Uranium, bis(aceto-O)dioxo-, dihydrate (9CI) * Uranyl acetate dihydrate

3 - Hazards Identification

SPECIAL INDICATION OF HAZARDS TO HUMANS AND THE ENVIRONMENT
Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

4 - First Aid Measures

AFTER INHALATION
If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.

AFTER SKIN CONTACT
In case of contact, immediately wash skin with soap and copious amounts of water.

AFTER EYE CONTACT
In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating the eyelids with fingers. Call a physician.

AFTER INGESTION

If swallowed, wash out mouth with water provided person is conscious. Call a physician.

5 - Fire Fighting Measures

EXTINGUISHING MEDIA
Suitable: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.

SPECIAL RISKS
Specific Hazard(s): Emits toxic fumes under fire conditions.

SPECIAL PROTECTIVE EQUIPMENT FOR FIREFIGHTERS
Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6 - Accidental Release Measures

PERSONAL PRECAUTION PROCEDURES TO BE FOLLOWED IN CASE OF LEAK OR SPILL
Handle as a radioactive spill.

PROCEDURE(S) OF PERSONAL PRECAUTION(S)
Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.

METHODS FOR CLEANING UP
Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7 - Handling and Storage

HANDLING
Directions for Safe Handling: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.

STORAGE
Conditions of Storage: Keep tightly closed.

8 - Exposure Controls / Personal Protection

ENGINEERING CONTROLS
Safety shower and eye bath. Use only in a chemical fume hood.

WORK PRACTICES
Use with adequate ventilation.

GENERAL HYGIENE MEASURES
Wash thoroughly after handling.

EXPOSURE LIMITS - DENMARK

Source	Type	Value
OEL	TWA	0.2 mg/m3

EXPOSURE LIMITS - UNITED KINGDOM

Source	Type	Value
OEL	TWA	0.2MG(U(/M3
OEL	STEL	0.6 mg(U)/m3

PERSONAL PROTECTIVE EQUIPMENT
Respiratory Protection: Government approved respirator.

Hand Protection: Compatible chemical-resistant gloves.
Eye Protection: Chemical safety goggles.

9 - Physical and Chemical Properties

Appearance	Physical State: Solid Color: Yellow Form: Fine crystals	
Property	**Value**	**At Temperature or Pressure**
pH	N/A	
BP/BP Range	N/A	
MP/MP Range	110 °C	
Flash Point	N/A	
Flammability	N/A	
Autoignition Temp	N/A	
Oxidizing Properties	N/A	
Explosive Properties	N/A	
Explosion Limits	N/A	
Vapor Pressure	N/A	
SG/Density	2.89 g/cm3	
Partition Coefficient	N/A	
Viscosity	N/A	
Vapor Density	N/A	
Saturated Vapor Conc.	N/A	
Evaporation Rate	N/A	
Bulk Density	N/A	
Decomposition Temp.	275 °C	
Solvent Content	N/A	
Water Content	N/A	
Surface Tension	N/A	
Conductivity	N/A	
Miscellaneous Data	N/A	
Solubility	Solubility in Water:10% in H2O, 20°C Soluble. Incomplete Other Solvents: DUE TO PRESENCE OF BASIC	

10 - Stability and Reactivity

STABILITY
Stable: Stable.
Materials to Avoid: Strong oxidizing agents.

HAZARDOUS DECOMPOSITION PRODUCTS
Hazardous Decomposition Products: Carbon monoxide, Carbon dioxide, Uranium oxides.

HAZARDOUS POLYMERIZATION
Hazardous Polymerization: Will not occur

11 - Toxicological Information

RTECS NUMBER: YR3600000

ACUTE TOXICITY

LD50
Oral
Rat
204 mg/kg
Remarks: Behavioral:Tremor. Skin and Appendages: Other: Hair.

Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

LD50
Subcutaneous
Rat
8300 UG/KG
Remarks: Behavioral:Tremor. Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

LD50
Oral
Mouse
242 mg/kg
Remarks: Behavioral:Tremor. Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

LD50
Subcutaneous
Mouse
20400 UG/KG
Remarks: Behavioral:Tremor. Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic:Changes in:Body temperature decrease.

SIGNS AND SYMPTOMS OF EXPOSURE

Exposure may cause: Conjunctivitis. Blood effects. Symptoms may be delayed. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

ROUTE OF EXPOSURE

Skin Contact: May cause skin irritation.
Skin Absorption: May be harmful if absorbed through the skin.
Eye Contact: May cause eye irritation.
Inhalation: May be fatal if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.
Ingestion: May be fatal if swallowed.

TARGET ORGAN INFORMATION

Kidneys. Liver. Lungs.

CHRONIC EXPOSURE - CARCINOGEN

Result: Contains a radioactive isotope which may produce cancer and genetic mutation.

CHRONIC EXPOSURE - TERATOGEN

Species: Rat
Dose: 50 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)
Result: Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Species: Rat
Dose: 100 MG/KG
Route of Application: Oral
Exposure Time: (6-15D PREG)

Result: Specific Developmental Abnormalities: Craniofacial (including nose and tongue).

CHRONIC EXPOSURE - REPRODUCTIVE HAZARD

Species: Mouse
Dose: 2 GM/KG
Route of Application: Oral
Exposure Time: (60D MALE/2W PRE/1-13D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death.

Species: Mouse
Dose: 990 MG/KG
Route of Application: Oral
Exposure Time: (60D MALE/14D PRE-4D POST)
Result: Effects on Newborn: Growth statistics (e.g., reduced weight gain). Effects on Newborn: Other postnatal measures or effects.

Species: Mouse
Dose: 640 MG/KG
Route of Application: Oral
Exposure Time: (64D MALE)
Result: Effects on Fertility: Male fertility index (e.g., # males impregnating females per # males exposed to fertile nonpregnant females).

Species: Mouse
Dose: 1280 MG/KG
Route of Application: Oral
Exposure Time: (64D MALE)
Result: Paternal Effects: Testes, epididymis, sperm duct.

Species: Mouse
Dose: 1500 MG/KG
Route of Application: Oral
Exposure Time: (13-21D PREG/21D POST)
Result: Maternal Effects: Other effects. Effects on Newborn: Weaning or lactation index (e.g., # alive at weaning per # alive at day 4). Effects on Newborn: Other postnatal measures or effects.

Species: Mouse
Dose: 4 MG/KG
Route of Application: Subcutaneous
Exposure Time: (10D PREG)
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Embryo or Fetus: Fetal death. Specific Developmental Abnormalities: Musculoskeletal system.

Species: Mouse
Dose: 5 MG/KG
Route of Application: Subcutaneous
Exposure Time: (6-15D PREG)
Result: Maternal Effects: Other effects. Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

12 - Ecological Information

No data available.

13 - Disposal Considerations

SUBSTANCE DISPOSAL
Dispose of spilled material as radioactive waste. Consult local, state, and federal regulations on the disposal of radioactive waste.

14 - Transport Information

RID/ADR
UN#: 2910
Class: 7
Proper Shipping Name: Radioactive material, excepted package, limited quantity of material

IMDG
UN#: 2910
Class: 7
Proper Shipping Name: RADIOACTIVE MATERIAL, EXCEPTED PACKAGE - LIMITED QUANTITY OF MATERIAL
Marine Pollutant: No
Severe Marine Pollutant: No

IATA
UN#: 2910
Class: 7
Proper Shipping Name: Radioactive material, excepted package, limited quantity of material
Inhalation Packing Group I: No

15 - Regulatory Information

CLASSIFICATION AND LABELING ACCORDING TO EU DIRECTIVES
ANNEX I INDEX NUMBER: 092-002-00-3
INDICATION OF DANGER: R T+ N
Radioactive. Very toxic. Dangerous for the environment.
R-PHRASES: 26/28 33 51/53
Very toxic by inhalation and if swallowed. Danger of cumulative effects. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S-PHRASES: 20/21 45 61
When using do not eat, drink, or smoke. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Avoid release to the environment. Refer to special instructions/safety data sheets.

16 - Other Information

WARRANTY
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 Inc., 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.

DISCLAIMER

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