TED PELLA, INC.
Microscopy Products for Science and Industry

Material Safety Data Sheet
Product No. 19481 Uranyl Acetate, Dihydrate
Issue Date (03-04-11)
Review Date (06-01-12)

Section 1: Product and Company Identification

Product Name: Uranyl Acetate, Dihydrate
Chemical Family: Radioactive material.
Synonym: Bis (acetato) dioxouranium, Diacetatodioxouranium Uranium acetate, Uranium oxyacetate, Uranyl acetate, Uranyl (2+) acetate
Company Name
Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477
Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)
Chemtrec Emergency Number 1-800-424-9300 24 hrs a day.

Section 2: Composition / Information on Ingredients

Principle Hazardous Component(s) (chemical and common name(s)) (Cas. No)	%	OSHA PEL mg/m3	ACGIH TLV mg/m3	NTP	IARC	OSHA regulated
*Uranyl Acetate, Dihydrate (6159-44-0)	99.9-100	0.05 (U)	NIF	NIF	NIF	NIF

***Made from Depleted Uranium**

Section 3: Hazard Identification

Emergency overview
Appearance: Solid, yellow crystals
Immediate effects: Highly Toxic, Radioactive material, Conjunctivitis, Blood effects. Symptoms may be delayed. Danger of cumulative effects.
Potential health effects
Primary Routes of entry: Inhalation, ingestion and eye and skin absorption.
Signs and Symptoms of Overexposure: Conjunctivitis. Blood effects. Symptoms may be delayed. To the best of our knowledge, the chemical physicals, and toxicological properties have not been thoroughly investigated.
Eyes: May cause eye irritation.
Skin: May cause skin irritation. May be harmful if absorbed through the skin.
Ingestion: Very toxic if swallowed. Target organs: Kidneys, Liver
Inhalation: Very toxic by inhalation. Target organs: Respiratory tract, Lungs.

Chronic Exposure: Carcinogen. Contains a radioactive isotope which may produce cancer or genetic mutation.
Chemical Listed As Carcinogen Or Potential Carcinogen: Yes (Radionuclides)
See Toxicological Information (Section11)
Potential environmental effects
See Ecological Information (Section 12)

Section 4: First Aid Measures
If accidental overexposure is suspected
Eye(s) 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.
Skin Contact: In case of contact, immediately wash skin with soap and copious amounts of water.
Inhalation: If inhaled, remove to fresh air. If breathing becomes difficult, call a physician.
Ingestion: If swallowed, wash out mouth with water provided person is conscious. Call a physician.
Note to physician
Treatment: NIF
Medical Conditions generally Aggravated by Exposure: NIF

Section 5: Fire Fighting Measures
Flash Point: NA
Flammable Limits: NA
Auto-ignition point: NA
Fire Extinguishing Media: Water spray. Carbon dioxide, dry chemical powder, or appropriate foam.
Special Fire Fighting Procedures: Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Unusual Fire and Explosion Hazards: Emits toxic fumes under fire conditions.
Hazardous combustion products: Under fire conditions carbon oxide and uranium oxides
DOT Class: 7, Radioactive material, excepted package-limited quantity of material.
(**Made from depleted Uranium**)

Section 6: Accidental Release Measures
Steps to be Taken in Case Material is Released or Spilled: Handle as a radioactive spill. Wear self-contained breathing apparatus, rubber boots, and heavy rubber gloves.
Methods for cleaning up: Sweep-up, place in container and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.
Waste Disposal Methods: Dispose of waste according to Federal, State and Local Regulations.

Section 7: Handling and Storage
Precautions to be Taken in Handling and Storage: User exposure: Avoid inhalation. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.
Storage temperature: Keep tightly closed. Store in a cool dry place.

Storage Pressure: NA

Section 8: Exposure Controls / Personal Protection

Engineering Controls

Ventilation required: Use only in a chemical fume hood. Use with adequate ventilation.

Personal Protection Equipment

Respiratory protection: Government approved respirator.
Protective gloves: Compatible chemical-resistant gloves.
Skin protection: Suitable clothing.
Eye protection: Chemical safety goggles.
Additional clothing and/or equipment: Safety shower and eye bath.

Exposure Guidelines

See Composition/Information on Ingredients (Section2)

Section 9 Physical and Chemical Properties

Appearance and Physical State: Yellow crystals. Solid.
Odor (threshold): ND
Specific Gravity (H_2O=1): 2.89 g/cm^3
Vapor Pressure (mm Hg): NA
Vapor Density (air=1): NA
Percent Volatile by volume: ND

Evaporation Rate (butyl acetate=1): ND
Boiling Point: NA
Freezing point / melting point: 110 ^{o}C
Decomposition temperature: 275 ^{o}C
pH: NA
Solubility in Water: 10% in H_2O, 20 ^{o}C soluble incomplete.
Molecular Weight: 424.15 AMU

Section 10: Stability and Reactivity

Stability: Stable.
Conditions to Avoid: Protect from moisture
Materials to Avoid (Incompatibility): Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide, carbon dioxides, Uranium oxides.
Hazardous Polymerization: Will not occur.

Section 11: Toxicological Information

Results of component toxicity test performed: Intraperitoneal, Mouse LD50: 24 mg/Kg. Oral, Mouse LD50: 242 mg/Kg. Oral, Rat LD50: 204 mg/Kg
USA MSHA Standard-air TWA: 0.2 mg (U)/m^3
Chronic Exposure: Contains a radioactive isotope which may produce cancer and genetic mutation.
Human experience: ND

This product **does** contain compounds listed by NTP or IARC or regulated by OSHA as a carcinogen. (Radionuclides)

Section 12: Ecological Information
Ecological Information: Dangerous to the environment. Toxic to aquatic organisms, may cause long term adverse effects in the aquatic environment.
Chemical Fate Information: ND

Section 13 Disposal Considerations
RCRA 40 CFR 261 Classification: Contact a licensed professional waste disposal service to dispose of this material. Dispose of spilled material as radioactive waste. Consult local, state and federal regulations on disposal of radioactive waste. Observe all federal, state and local environmental regulations.
Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

Section 14: Transportation Information
US DOT Information: Proper shipping name: Radioactive material, excepted package-limited quantity of material.
Hazard Class: 7
Packaging group: None
UN Number: UN2910
Limitations: Hazard Label: 49 CFR 173.421; LABEL: UN2910 Radioactive material, excepted Package-limited quantity of material
PIH (Poison inhalation hazard): **Not a PIH**
IATA: Proper shipping name: Radioactive material, excepted package-limited quantity of material
Hazard Class: 7
Packing group: None
UN Number: UN2910
IATA 10.7.8 LABEL: UN2910, Radioactive material, excepted package-limited quantity of material
Marine Pollutant: Not listed.
Canadian TDG: NIF

Section 15: Regulatory Information
United States Federal Regulations
MSDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200.
SARA: 302,304, 313: No
SARA Title III: No
RCRA: NIF
TSCA: Listed
CERCLA: RQ as Uranyl acetate (anhydride form, CAS # 541-09-3): 100 lbs (45.4 Kg)
RTECS Number: Uranyl acetate (anhydride form, CAS # 541-09-3): YR3675000
RTECS Number: Uranyl acetate, dihydrate: YR3600000

Licensing and Registration: Ownership, production and use of DU are subject to state and federal regulations. Title 10, Part 40, of the Code of Federal Regulations describes the requirements for obtaining a Radioactive Materials License. Part 40.22 (a) A general license is hereby issued authorizing commercial and industrial firms, research, educational and medical institutions and Federal, State and local government agencies to use and transfer not more than fifteen (15) pounds of source material at any one time for research, development, educational, commercial or operational purposes. A person authorized to use or transfer source material, pursuant to this general license, may not receive more than a total of 150 pounds of source material in any one calendar year

State Regulations

California Proposition 65: This product is or contains chemical(s) known to the state of California to cause cancer. (Radionuclides)

International Regulations

Canada WHMIS: This product has been classified in accordance with the hazard criteria of the CPR, and the MSDS contains all the information required by the CPR.
DSL: Yes
NDSL: No
Europe EINECS Numbers: ND

Section 16: Other Information

Label Information: Highly Toxic (USA), Very Toxic (EU), Dangerous for the environment.
European Risk and Safety Phrases: R: 26/28 33 51/53. Risk Statements: 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: 20/21 45 61. Safety Statements: 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.
European symbols needed: T+, N
US Statements: Radioactive material. Target organ(s): Liver. Kidneys.
Canadian WHMIS Symbols: NIF
HMIS(® Hazard Rating: Health: **3***; Fire: **0**; Reactivity: **0**
(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)
*additional chronic hazards present.
NFPA Hazard Rating: Health: **3**; Fire: **0**; Reactivity: **0**
(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

Abbreviations used in this document

NE= Not established
NA= Not applicable
NIF= No Information Found
ND= No Data

Disclaimer

information from all sources. While this data is presented in good faith and believed to be accurate, it should be considered only as a supplement to other information gathered by the user. It is the User's responsibility to assure the proper use and disposal of these materials as well as the safety and health of all personnel who may work with or otherwise come in contact with these materials.