1. PRODUCT AND COMPANY IDENTIFICATION

1.1 Product identifiers
Product name: Uranyl acetate dihydrate
Product Number: 73943
Brand: Fluka
Index-No.: 092-002-00-3
CAS-No.: 6159-44-0

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet
Company: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO  63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052

1.4 Emergency telephone number
Emergency Phone #: (314) 776-6555

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture
GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)
Acute toxicity, Oral (Category 2), H300
Acute toxicity, Inhalation (Category 2), H330
Specific target organ toxicity - repeated exposure (Category 2), H373
Acute aquatic toxicity (Category 2), H401
Chronic aquatic toxicity (Category 2), H411

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements
Pictogram

Signal word: Danger

Hazard statement(s)
H300 + H330 Fatal if swallowed or if inhaled
H373 May cause damage to organs through prolonged or repeated exposure.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P273 Avoid release to the environment.
P284 Wear respiratory protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P310 Immediately call a POISON CENTER or doctor/physician.
P320 Specific treatment is urgent (see supplemental first aid instructions on this label).
P330 Rinse mouth.
P391 Collect spillage.
P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.
P501 Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS
Radioactive.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances
Formula : C₄H₆O₆U · 2H₂O
Molecular weight : 424.15 g/mol
CAS-No. : 6159-44-0
EC-No. : 208-767-5
Index-No. : 092-002-00-3

Hazardous components

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(acetato-O)dioxouranium dihydrate</td>
<td>Acute Tox. 2; STOT RE 2; Aquatic Acute 2; Aquatic Chronic 2; H300 + H330, H373, H411</td>
<td>&lt;= 100 %</td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

4. FIRST AID MEASURES

4.1 Description of 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.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available
5. FIREFIGHTING MEASURES

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture
Carbon oxides, Uranium oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
No data available

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures
Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust. For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3 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.

6.4 Reference to other sections
For disposal see section 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Keep container tightly closed in a dry and well-ventilated place.

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bis(acetato-O)dioxouranium dihydrate</td>
<td>6159-44-0</td>
<td>TWA</td>
<td>0.050000 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.050000 mg/m³</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>0.050000 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>Remarks</td>
<td></td>
<td></td>
<td></td>
<td>Potential Occupational Carcinogen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>See Appendix A</td>
</tr>
</tbody>
</table>
TWA 0.05 mg/m³ USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
TWA 0.05 mg/m³ USA. NIOSH Recommended Exposure Limits

Potential Occupational Carcinogen
See Appendix A

8.2 Exposure controls

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

**Personal protective equipment**

*Eye/face 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 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 480 min
Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

*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.

*Respiratory protection*
Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (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).

*Control of environmental exposure*
Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

a) **Appearance**
Form: crystalline
Colour: yellow

b) **Odour**
No data available

c) **Odour Threshold**
No data available
9.2 Other safety information
No data available

10. STABILITY AND REACTIVITY

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
No data available

10.5 Incompatible materials
Strong oxidizing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity
LD50 Oral - Rat - 204 mg/kg
Dermal: No data available

LD50 Subcutaneous - Rat - 8.300 mg/kg


**Skin corrosion/irritation**
No data available

**Serious eye damage/eye irritation**
No data available

**Respiratory or skin sensitisation**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
Contains a radioactive isotope which may produce cancer and genetic mutation.

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.

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
No data available

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
May cause damage to organs through prolonged or repeated exposure.

**Aspiration hazard**
No data available

**Additional Information**
RTECS: Not available

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

### 12. ECOLOGICAL INFORMATION

12.1 **Toxicity**
No data available

12.2 **Persistence and degradability**
No data available

12.3 **Bioaccumulative potential**
No data available

12.4 **Mobility in soil**
No data available

12.5 **Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6 Other adverse effects
An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.
Toxic to aquatic life with long lasting effects.
No data available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Product
Contact a licensed professional waste disposal service to dispose of this material. Offer surplus and non-recyclable solutions to a licensed disposal company. Consult local, state, and federal regulations on the disposal of radioactive waste.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 3288 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, inorganic, n.o.s. (Bis(acetato-O)dioxouranium dihydrate)
Reportable Quantity (RQ): 100 lbs
Marine pollutant: yes
Poison Inhalation Hazard: No

IMDG
UN number: 3288 Class: 6.1 Packing group: II
Proper shipping name: TOXIC SOLID, INORGANIC, N.O.S. (Bis(acetato-O)dioxouranium dihydrate)
Marine pollutant: yes

IATA
UN number: 3288 Class: 6.1 Packing group: II
Proper shipping name: Toxic solid, inorganic, n.o.s. (Bis(acetato-O)dioxouranium dihydrate)

Further information
Radioactive material, excepted package - limited quantity of material

15. REGULATORY INFORMATION

SARA 302 Components
No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
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, Chronic Health Hazard

Massachusetts Right To Know Components

<table>
<thead>
<tr>
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<th>CAS-No.</th>
<th>Revision Date</th>
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<tr>
<td>Bis(acetato-O)dioxouranium dihydrate</td>
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<td>1993-04-24</td>
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Pennsylvania Right To Know Components

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New Jersey Right To Know Components

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</tr>
</tbody>
</table>

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

Full text of H-Statements referred to under sections 2 and 3.

| Acute Tox. | H300        | Fatal if swallowed.          |
| Aquatic Acute | H300 + H330 | Fatal if swallowed or if inhaled |
| Aquatic Chronic | H330       | Fatal if inhaled.            |
|               | H373        | May cause damage to organs through prolonged or repeated exposure. |
|               | H401        | Toxic to aquatic life.       |

HMIS Rating
Health hazard: 3
Chronic Health Hazard: *
Flammability: 0
Physical Hazard 0

NFPA Rating
Health hazard: 4
Fire Hazard: 0
Reactivity Hazard: 0

Further information
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Preparation Information
Sigma-Aldrich Corporation
Product Safety – Americas Region
1-800-521-8956

Version: 4.6 Revision Date: 11/30/2015 Print Date: 07/27/2016