

## Chemical Safety Data Sheet MSDS / SDS

## URANYL NITRATE

Revision Date:2023-10-21 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : URANYL NITRATE  
CBnumber : CB9257520  
CAS : 10102-06-4  
Synonyms : UO<sub>2</sub>(NO<sub>3</sub>)<sub>2</sub>,uranyl nitrate

## Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## Classification of the substance or mixture

Acute toxicity - Category 2, Oral  
Acute toxicity - Category 2, Inhalation  
Specific target organ toxicity – repeated exposure, Category 2  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 2

## Label elements

## Pictogram(s)

Signal word Danger

## Hazard statement(s)

H300 Fatal if swallowed  
H330 Fatal 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)

## Prevention

P264 Wash ... thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P271 Use only outdoors or in a well-ventilated area.

P284 [In case of inadequate ventilation] wear respiratory protection.

P273 Avoid release to the environment.

#### **Response**

P301+P316 IF SWALLOWED: Get emergency medical help immediately.

P321 Specific treatment (see ... on this label).

P330 Rinse mouth.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P316 Get emergency medical help immediately.

P320 Specific treatment is urgent (see ... on this label).

P319 Get medical help if you feel unwell.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

#### **Disposal**

P501 Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

#### **Other hazards**

no data available

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: URANYL NITRATE
Synonyms	: UO <sub>2</sub> (NO <sub>3</sub> ) <sub>2</sub> , uranyl nitrate
CAS	: 10102-06-4
MF	: N <sub>2</sub> O <sub>8</sub> U
MW	: 394.04

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **If inhaled**

Move the victim into fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration and consult a doctor immediately.

Do not use mouth to mouth resuscitation if the victim ingested or inhaled the chemical.

#### **Following skin contact**

Take off contaminated clothing immediately. Wash off with soap and plenty of water. Consult a doctor.

#### Following eye contact

Rinse with pure water for at least 15 minutes. Consult a doctor.

#### Following ingestion

Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Call a doctor or Poison Control Center immediately.

#### Most important symptoms and effects, both acute and delayed

Excessive inhalation of dust may cause irritation of lungs and delayed symptoms similar to those observed after ingestion. Dust irritates eyes and skin and may be absorbed through skin on prolonged exposure. Ingestion causes irritation of mouth and stomach; inflammation of kidney and liver develops 1 to 4 days after exposure. (USCG, 1999)

#### Indication of any immediate medical attention and special treatment needed

Basic treatment: Establish a patent airway. Suction if necessary. Watch for signs of respiratory insufficiency and assist ventilations if necessary. Administer oxygen by nonrebreather mask at 10 to 15 L/min. Monitor for shock and treat if necessary ... Anticipate seizures and treat if necessary ... Perform routine emergency care for associated injuries. For eye contamination, flush eyes immediately with water. Irrigate each eye continuously during transport ... Do not use emetics. For ingestion, rinse mouth and administer 5 ml/kg up to 200 ml of water for dilution if the patient can swallow, has a good gag reflex, and does not drool ... Perform routine BLS care as necessary. Radioactives I, II, and III

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## SECTION 5: Firefighting measures

#### Extinguishing media

Use dry chemical, carbon dioxide or alcohol-resistant foam.

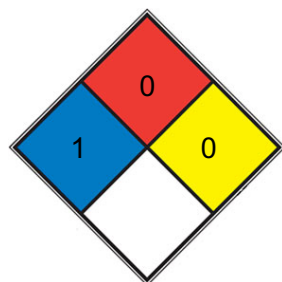
#### Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Toxic oxides of nitrogen formed in fires. Behavior in Fire: Intensifies fires. When large quantities are involved, nitrate may fuse or melt; application of water may then cause extensive scattering of molten material. (USCG, 1999)

#### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

#### NFPA 704



■ HEALTH 1 Exposure would cause irritation with only minor residual injury (e.g. [acetone](#), sodium bromate, potassium chloride)

■ FIRE 0 Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

■ REACT 0 Normally stable, even under fire exposure conditions, and is not reactive with water (e.g. helium, [N2](#))

□ SPEC.

□ HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Avoid dust formation. Avoid breathing mist, gas or vapours. Avoid contacting with skin and eye. Use personal protective equipment. Wear chemical impermeable gloves. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.

### Environmental precautions

Prevent further spillage or leakage if it is safe to do so. Do not let the chemical enter drains. Discharge into the environment must be avoided.

### Methods and materials for containment and cleaning up

Collect and arrange disposal. Keep the chemical in suitable and closed containers for disposal. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Adhered or collected material should be promptly disposed of, in accordance with appropriate laws and regulations.

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## SECTION 7: Handling and storage

### Precautions for safe handling

Handling in a well ventilated place. Wear suitable protective clothing. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Use non-sparking tools. Prevent fire caused by electrostatic discharge steam.

### Conditions for safe storage, including any incompatibilities

Store the container tightly closed in a dry, cool and well-ventilated place. Store apart from foodstuff containers or incompatible materials.

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## SECTION 8: Exposure controls/personal protection

### Control parameters

#### Occupational Exposure limit values

Component	Bis(nitrato-O)dioxouranium
CAS No.	10102-06-4
	NIOSH considers uranium (soluble compounds, as U) to be a potential occupational carcinogen. /Uranium (soluble compounds, as U)/ Recommended Exposure Limit: 10 Hr Time-Weighted Avg: 0.05 mg/cu m. /Uranium (soluble compounds, as U)/

#### Biological limit values

no data available

### Exposure controls

Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Set up emergency exits and the risk-elimination area.

### Individual protection measures

#### Eye/face protection

Wear tightly fitting safety goggles with side-shields conforming to EN 166(EU) or NIOSH (US).

#### Skin protection

Wear fire/flammable resistant and impervious clothing. Handle with gloves. Gloves must be inspected prior to use. Wash and dry hands. The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

#### Respiratory protection

If the exposure limits are exceeded, irritation or other symptoms are experienced, use a full-face respirator.

#### Thermal hazards

no data available

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## SECTION 9: Physical and chemical properties

### Information on basic physicochemical properties

Physical state	yellow-green solid
Colour	Yellow, rhombic crystals
Odour	no data available
Melting point/freezing point	60.2 °C
Boiling point or initial boiling point and boiling range	118 °C (decomposition)
Flammability	no data available
Lower and upper explosion limit/flammability limit	no data available
Flash point	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
pH	no data available
Kinematic viscosity	no data available
Solubility	tributyl phosphate
Partition coefficient n-octanol/water	no data available
Vapour pressure	no data available
Density and/or relative density	2.81 g/cm <sup>3</sup>
Relative vapour density	no data available
Particle characteristics	no data available

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## SECTION 10: Stability and reactivity

### Reactivity

10 mg/cu m; NIOSH considers uranium (soluble compounds, as U) to be a potential occupational carcinogen. Uranium (soluble compounds, as U)

### **Chemical stability**

no data available

### **Possibility of hazardous reactions**

Not flammable ... /Uranium nitrate hexahydrate/Mixtures of metal/nonmetal nitrates with alkyl esters may explode, owing to the formation of alkyl nitrates; mixtures of the nitrate with phosphorus, tin (II) chloride, or other reducing agents may react explosively [Bretherick 1979. p. 108-109]. Diethyl ether and uranyl nitrate have been involved in several explosion and fire incidents [Nucl. Sci. Abs., 1976, 33], 19790 [J. Amer. Chem. Soc., 1912, 34, 1686].

### **Conditions to avoid**

no data available

### **Incompatible materials**

In a study of hypergolic ignition of ethylene glycol by oxidants, ... uranyl nitrate /caused ignition on contact/ at 100 deg C.

### **Hazardous decomposition products**

When heated to decomposition it emits toxic fumes of /nitrogen oxides/.

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: no data available
- Inhalation: no data available
- Dermal: no data available

### **Skin corrosion/irritation**

no data available

### **Serious eye damage/irritation**

no data available

### **Respiratory or skin sensitization**

no data available

### **Germ cell mutagenicity**

no data available

### **Carcinogenicity**

A1; Confirmed human carcinogen. Uranium (natural), soluble & insoluble compounds, as U

### **Reproductive toxicity**

no data available

**STOT-single exposure**

no data available

**STOT-repeated exposure**

no data available

**Aspiration hazard**

no data available

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## SECTION 12: Ecological information

**Toxicity**

Toxicity to fish: no data available

Toxicity to daphnia and other aquatic invertebrates: no data available

Toxicity to algae: no data available

Toxicity to microorganisms: no data available

**Persistence and degradability**

no data available

**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**Other adverse effects**

no data available

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## SECTION 13: Disposal considerations

**Disposal methods****Product**

The material can be disposed of by removal to a licensed chemical destruction plant or by controlled incineration with flue gas scrubbing. Do not contaminate water, foodstuffs, feed or seed by storage or disposal. Do not discharge to sewer systems.

**Contaminated packaging**

Containers can be triply rinsed (or equivalent) and offered for recycling or reconditioning. Alternatively, the packaging can be punctured to make it unusable for other purposes and then be disposed of in a sanitary landfill. Controlled incineration with flue gas scrubbing is possible for combustible packaging materials.

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## SECTION 14: Transport information

**UN Number**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

**UN Proper Shipping Name**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

**Transport hazard class(es)**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

**Packing group, if applicable**

ADR/RID: no data available

IMDG: no data available

IATA: no data available

**Environmental hazards**

ADR/RID: Yes

IMDG: Yes

IATA: Yes

**Special precautions for user**

no data available

**Transport in bulk according to IMO instruments**

no data available

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**SECTION 15: Regulatory information****Safety, health and environmental regulations specific for the product in question****European Inventory of Existing Commercial Chemical Substances (EINECS)**

Listed.

**EC Inventory**

Listed.

**United States Toxic Substances Control Act (TSCA) Inventory**

Listed.

**China Catalog of Hazardous chemicals 2015**

Not Listed.

**New Zealand Inventory of Chemicals (NZIoC)**



Listed.

#### **PICCS**

Listed.

#### **Vietnam National Chemical Inventory**

Not Listed.

#### **IECSC**

Not Listed.

#### **Korea Existing Chemicals List (KECL)**

Not Listed.

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## SECTION 16: Other information

### **Abbreviations and acronyms**

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

### **References**

IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>

HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>

IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>

eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: [http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)

CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>

ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>

ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>

Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>

ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>

#### **Disclaimer:**

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