

## Chemical Safety Data Sheet MSDS / SDS

## Cadmium 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 : Cadmium nitrate  
CBnumber : CB8463975  
CAS : 10325-94-7  
EINECS Number : 233-710-6  
Synonyms : cadmium 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 4, Oral  
Acute toxicity - Category 4, Dermal  
Acute toxicity - Category 4, Inhalation  
Germ cell mutagenicity, Category 1B  
Carcinogenicity, Category 1B  
Specific target organ toxicity – repeated exposure, Category 1  
Hazardous to the aquatic environment, short-term (Acute) - Category Acute 1  
Hazardous to the aquatic environment, long-term (Chronic) - Category Chronic 1

## Label elements

## Pictogram(s)

☐

Signal word : Danger

## Hazard statement(s)

H340 May cause genetic defects

H350 May cause cancer

H373 May cause damage to organs through prolonged or repeated exposure

H411 Toxic to aquatic life with long lasting effects

#### **Precautionary statement(s)**

P201 Obtain special instructions before use.

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

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P308+P313 IF exposed or concerned: Get medical advice/attention.

#### **Prevention**

P264 Wash ... thoroughly after handling.

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

P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection/...

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

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

P203 Obtain, read and follow all safety instructions before use.

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

P273 Avoid release to the environment.

#### **Response**

P301+P317 IF SWALLOWED: Get medical help.

P330 Rinse mouth.

P302+P352 IF ON SKIN: Wash with plenty of water/...

P317 Get medical help.

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

P362+P364 Take off contaminated clothing and wash it before reuse.

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

P318 IF exposed or concerned, get medical advice.

P319 Get medical help if you feel unwell.

P391 Collect spillage.

#### **Storage**

P405 Store locked up.

#### **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 : Cadmium nitrate

Synonyms : cadmium nitrate

|           |              |
|-----------|--------------|
| CAS       | : 10325-94-7 |
| EC number | : 233-710-6  |
| MF        | : CdN2O6     |
| MW        | : 236.42     |

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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

Inhalation of fumes can produce coughing, chest constriction, headache, nausea, vomiting, pneumonitis. Chronic poisoning is characterized by emphysema and kidney injury. Ingestion causes gastrointestinal disturbance and severe toxic symptoms; both kidney and liver injuries may occur. Contact with eyes causes irritation. (USCG, 1999)

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

Immediate first aid: Ensure that adequate decontamination has been carried out. If patient is not breathing, start artificial respiration, preferably with a demand-valve resuscitator, bag-valve-mask device, or pocket mask, as trained. Perform CPR as necessary. Immediately flush contaminated eyes with gently flowing water. Do not induce vomiting. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain an open airway and prevent aspiration. Keep patient quiet and maintain normal body temperature. Obtain medical attention. Cadmium and Related Compounds

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## SECTION 5: Firefighting measures

### Extinguishing media

If material on fire or involved in fire: Extinguish fire using agent suitable for type of surrounding fire. (Material itself does not burn or burns with difficulty.) Use water in flooding quantities as fog. Use "alcohol" foam, dry chemical or carbon dioxide. Cadmium compounds, NOS

### Specific Hazards Arising from the Chemical

Special Hazards of Combustion Products: Toxic oxides of nitrogen and cadmium oxide fume may form in fires. Behavior in Fire: Will increase intensity of fire when in contact with combustible material (USCG, 1999)

### Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

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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**

Stop discharge if possible, isolate and remove discharged material. Tetrahydrate

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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**

Keep cadmium nitrate /tetrahydrate/ well closed in a cool place. Tetrahydrate

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## SECTION 8: Exposure controls/personal protection

### **Control parameters**

#### **Occupational Exposure limit values**

no data available

#### **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/flame 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 | white cubic crystals |
|----------------|----------------------|

|        |                      |
|--------|----------------------|
| Colour | White cubic crystals |
|--------|----------------------|

|       |                   |
|-------|-------------------|
| Odour | no data available |
|-------|-------------------|

|                              |        |
|------------------------------|--------|
| Melting point/freezing point | 59.4°C |
|------------------------------|--------|

|  |                  |
|--|------------------|
| Boiling point or initial boiling point and | 83°C at 760 mmHg |
|--|------------------|

|               |  |
|---------------|--|
| boiling range |  |
|---------------|--|

|              |                   |
|--------------|-------------------|
| Flammability | no data available |
|--------------|-------------------|

|                           |                   |
|---------------------------|-------------------|
| Lower and upper explosion | no data available |
|---------------------------|-------------------|

|                          |  |
|--------------------------|--|
| limit/flammability limit |  |
|--------------------------|--|

|             |                   |
|-------------|-------------------|
| Flash point | no data available |
|-------------|-------------------|

|                           |                   |
|---------------------------|-------------------|
| Auto-ignition temperature | no data available |
|---------------------------|-------------------|

|                           |                   |
|---------------------------|-------------------|
| Decomposition temperature | no data available |
|---------------------------|-------------------|

|    |    |
|----|----|
| pH | ≥3 |
|----|----|

|                     |                   |
|---------------------|-------------------|
| Kinematic viscosity | no data available |
|---------------------|-------------------|

|            |                             |
|------------|-----------------------------|
| Solubility | Soluble in ammonia, alcohol |
|------------|-----------------------------|

|                                       |                   |
|---------------------------------------|-------------------|
| Partition coefficient n-octanol/water | no data available |
|---------------------------------------|-------------------|

|                 |                   |
|-----------------|-------------------|
| Vapour pressure | no data available |
|-----------------|-------------------|

|                                 |                |
|---------------------------------|----------------|
| Density and/or relative density | 2.455 (17/4°C) |
|---------------------------------|----------------|

|                         |                   |
|-------------------------|-------------------|
| Relative vapour density | no data available |
|-------------------------|-------------------|

|                          |                   |
|--------------------------|-------------------|
| Particle characteristics | no data available |
|--------------------------|-------------------|

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## SECTION 10: Stability and reactivity

### Reactivity

no data available

### Chemical stability

Stable during transport. Tetrahydrate

### Possibility of hazardous reactions

Mixtures of metal/nonmetal nitrates with alkyl esters may explode, owing to the formation of alkyl nitrates; mixtures of a nitrate with phosphorus, tin (II) chloride, or other reducing agents may react explosively [Bretherick 1979 p. 108-109].

### Conditions to avoid

no data available

### **Incompatible materials**

no data available

### **Hazardous decomposition products**

When heated to decomp, emits very toxic fumes of /cadmium and nitrogen oxides/.

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## **SECTION 11: Toxicological information**

### **Acute toxicity**

- Oral: LD50 Rat oral 300 mg/kg
- 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**

Evaluation: There is sufficient evidence in humans for the carcinogenicity of cadmium and cadmium compounds. There is sufficient evidence in experimental animals for the carcinogenicity of cadmium compounds. There is limited evidence in experimental animals for the carcinogenicity of cadmium metal. In making the overall evaluation, the Working Group took into consideration the evidence that ionic cadmium causes genotoxic effects in a variety of types of eukaryotic cells, including human cells. Overall evaluation: Cadmium and cadmium compounds are carcinogenic to humans (Group 1). Cadmium and cadmium compounds

### **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: LC50; Species: *Oncorhynchus mykiss* (Rainbow Trout) juvenile; Conditions: freshwater, flow through, 14 deg C, pH 8.0, hardness 140 mg/L CaCO<sub>3</sub>, alkalinity 95 mg/L CaCO<sub>3</sub>, organic carbon 3 mg/L; Concentration: 50 ug/L for 24 hr

Toxicity to daphnia and other aquatic invertebrates: EC50; Species: *Daphnia magna* (Water Flea) adult, length 1 mm; Conditions: freshwater, static, 18 deg C, pH 7.8, hardness 100 mg/L CaCO<sub>3</sub>, dissolved oxygen > or =90%; Concentration: 120 ug/L for 24 hr (95% confidence interval: 100-150 ug/L); Effect: intoxication, immobilization

Toxicity to algae: EC50; Species: *Chlorella vulgaris* (Green Algae) 14000000 cells/mL; Conditions: static; Concentration: 1400 ug/L for 5 days; Effect: biochemistry, chlorophyll

Toxicity to microorganisms: no data available

### Persistence and degradability

no data available

### Bioaccumulative potential

*Salvinia natans* (fern) exposed to cadmium nitrate for 21 days exhibited a bioconcentration factor of 960.

### Mobility in soil

An adsorption rate of 1.22/hr in river sediments from the Nagara River, Japan, which is heavily impacted by industrial effluents and urban wastes, has been reported for cadmium nitrate; the desorption rate was reported as 0.0038/hr. These values correspond to a concentration factor of 321(1).

### 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: UN2570 (For reference only, please check.)

IMDG: UN2570 (For reference only, please check.)

IATA: UN2570 (For reference only, please check.)

### **UN Proper Shipping Name**

ADR/RID: CADMIUM COMPOUND (For reference only, please check.)

IMDG: CADMIUM COMPOUND (For reference only, please check.)

IATA: CADMIUM COMPOUND (For reference only, please check.)

### **Transport hazard class(es)**

ADR/RID: 6.1 (For reference only, please check.)

IMDG: 6.1 (For reference only, please check.)

IATA: 6.1 (For reference only, please check.)

### **Packing group, if applicable**

ADR/RID: I (For reference only, please check.)

IMDG: I (For reference only, please check.)

IATA: I (For reference only, please check.)

### **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**

Listed.

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

Listed.

#### **PICCS**



Listed.

**Vietnam National Chemical Inventory**

Not Listed.

**IECSC**

Listed.

**Korea Existing Chemicals List (KECL)**

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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