

## Material Safety Data Sheet

Version 4.2  
Revision Date 01/17/2012  
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### 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Cadmium nitrate tetrahydrate

Product Number : 642045

Brand : Aldrich

Supplier : Sigma-Aldrich  
3050 Spruce Street  
SAINT LOUIS MO 63103  
USA

Telephone : +1 800-325-5832

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Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation  
Product Safety - Americas Region  
1-800-521-8956

### 2. HAZARDS IDENTIFICATION

#### Emergency Overview

##### OSHA Hazards

Oxidizer, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Harmful by skin absorption., Irritant

##### Target Organs

Bone, Kidney, Lungs, Liver, Pancreas., Male reproductive system.

##### GHS Classification

Oxidizing solids (Category 2)  
Acute toxicity, Oral (Category 3)  
Acute toxicity, Inhalation (Category 4)  
Acute toxicity, Dermal (Category 4)  
Skin irritation (Category 2)  
Eye irritation (Category 2A)  
Carcinogenicity (Category 1B)  
Acute aquatic toxicity (Category 1)  
Chronic aquatic toxicity (Category 1)

##### GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H272 May intensify fire; oxidiser.  
H301 Toxic if swallowed.  
H312 + H332 Harmful in contact with skin or if inhaled  
H315 Causes skin irritation.  
H319 Causes serious eye irritation.  
H350 May cause cancer.  
H410 Very toxic to aquatic life with long lasting effects.

**Precautionary statement(s)**

P201	Obtain special instructions before use.
P220	Keep/Store away from clothing/ combustible materials.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P501	Dispose of contents/ container to an approved waste disposal plant.

**HMIS Classification**

<b>Health hazard:</b>	2
<b>Chronic Health Hazard:</b>	*
<b>Flammability:</b>	0
<b>Physical hazards:</b>	2

**NFPA Rating**

<b>Health hazard:</b>	2
<b>Fire:</b>	0
<b>Reactivity Hazard:</b>	2
<b>Special hazard.:</b>	OX

**Potential Health Effects**

<b>Inhalation</b>	Toxic if inhaled. Causes respiratory tract irritation.
<b>Skin</b>	Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.
<b>Ingestion</b>	Toxic if swallowed.

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**3. COMPOSITION/INFORMATION ON INGREDIENTS**

Formula	: $\text{CdN}_2\text{O}_6 \cdot 4\text{H}_2\text{O}$
Molecular Weight	: 308.48 g/mol

Component		Concentration
<b>Cadmium nitrate</b>		
CAS-No.	10022-68-1	-
EC-No.	233-710-6	
Index-No.	048-001-00-5	

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**4. 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**

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**If swallowed**

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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**5. FIREFIGHTING MEASURES****Suitable extinguishing media**

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

**Special protective equipment for firefighters**

Wear self contained breathing apparatus for fire fighting if necessary.

**Hazardous combustion products**

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>), Cadmium/cadmium oxides

**Further information**

Use water spray to cool unopened containers.

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**6. ACCIDENTAL RELEASE MEASURES****Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

**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.

**Methods and materials for containment and cleaning up**

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

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**7. HANDLING AND STORAGE****Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking. Keep away from heat and sources of ignition. Normal measures for preventive fire protection.

**Conditions for safe storage**

Keep container tightly closed in a dry and well-ventilated place.

hygroscopic

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Cadmium nitrate	10022-68-1	TWA	0.0020 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
Remarks	Suspected human carcinogen			
		TWA	0.01 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies			
		TWA	0.002 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Kidney damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Suspected human carcinogen varies			
	Potential Occupational Carcinogen See Appendix A			
	Potential Occupational Carcinogen See Appendix A			

**Personal protective equipment****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).

**Hand 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.

**Eye 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 and 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.

**Hygiene measures**

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

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**9. PHYSICAL AND CHEMICAL PROPERTIES****Appearance**

Form	solid
Colour	white

**Safety data**

pH	no data available
Melting point/freezing point	Melting point/range: 59.5 °C (139.1 °F) - lit.
Boiling point	no data available
Flash point	not applicable
Ignition temperature	no data available
Autoignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	no data available
Water solubility	no data available
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

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**10. STABILITY AND REACTIVITY****Chemical stability**

Stable under recommended storage conditions.

**Possibility of hazardous reactions**

no data available

**Conditions to avoid**

no data available

**Materials to avoid**

Reducing agents, Phosphorus, Copper, Organic materials

**Hazardous decomposition products**

Hazardous decomposition products formed under fire conditions. - nitrogen oxides (NO<sub>x</sub>), Cadmium/cadmium oxides  
Other decomposition products - no data available

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**11. TOXICOLOGICAL INFORMATION****Acute toxicity****Oral LD50**

LD50 Oral - rat - 300 mg/kg

no data available

**Inhalation LC50****Dermal LD50**

no data available

**Other information on acute toxicity**

no data available

no data available

**Skin corrosion/irritation**

Skin - rabbit - Severe skin irritation - 24 h

**Serious eye damage/eye irritation**

Eyes - rabbit - Moderate eye irritation - 24 h

**Respiratory or skin sensitization**

no data available

**Germ cell mutagenicity**

Genotoxicity in vitro - rat - Liver

Unscheduled DNA synthesis

**Carcinogenicity**

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification. Chronic exposure to cadmium may cause lung and prostate cancer. Presumed to have carcinogenic potential for humans

IARC: 1 - Group 1: Carcinogenic to humans (Cadmium nitrate)

NTP: Known to be human carcinogenThe reference note has been added by TD based on the background information of the NTP. (Cadmium nitrate)

OSHA: 1910.1027 (Cadmium nitrate)

**Reproductive toxicity**

Overexposure may cause reproductive disorder(s) based on tests with laboratory animals.

**Teratogenicity**

no data available

**Specific target organ toxicity - single exposure (Globally Harmonized System)**

no data available

**Specific target organ toxicity - repeated exposure (Globally Harmonized System)**

no data available

**Aspiration hazard**

no data available

**Potential health effects**

<b>Inhalation</b>	Toxic if inhaled. Causes respiratory tract irritation.
<b>Ingestion</b>	Toxic if swallowed.
<b>Skin</b>	Causes skin irritation.
<b>Eyes</b>	Causes eye irritation.

**Signs and Symptoms of Exposure**

Acute inhalation exposure to cadmium fumes may cause "metal fume fever" with flu-like symptoms of weakness, fever, headache, chills, nausea, vomiting, dizziness, sweating, muscular pain, cough and difficulty breathing. Acute pulmonary edema may develop within 24 hours and reaches a maximum by three days. The first chronic effect of exposure to cadmium is generally kidney damage, manifested by excretion of excessive protein in the urine, followed by anemia, teeth discoloration and loss of smell. Cadmium also is believed to cause pulmonary emphysema and bone disease.

**Synergistic effects**

no data available

**Additional Information**

RTECS: Not available

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**12. ECOLOGICAL INFORMATION****Toxicity**

no data available

**Persistence and degradability**

Biodegradability	Result: - According to the results of tests of biodegradability this product is not readily biodegradable.
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**Bioaccumulative potential**

no data available

**Mobility in soil**

no data available

**PBT and vPvB assessment**

no data available

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

no data available

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**13. DISPOSAL CONSIDERATIONS****Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

**Contaminated packaging**

Dispose of as unused product.

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**14. TRANSPORT INFORMATION****DOT (US)**

UN number: 3087    Class: 5.1 (6.1)    Packing group: II  
Proper shipping name: Oxidizing solid, toxic, n.o.s. (Cadmium nitrate)  
Marine pollutant: No  
Poison Inhalation Hazard: No

**IMDG**

UN number: 3087 Class: 5.1 (6.1) Packing group: II EMS-No: F-A, S-Q  
Proper shipping name: OXIDIZING SOLID, TOXIC, N.O.S. (Cadmium nitrate)  
Marine pollutant: No

**IATA**

UN number: 3087 Class: 5.1 (6.1) Packing group: II  
Proper shipping name: Oxidizing solid, toxic, n.o.s. (Cadmium nitrate)

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**15. REGULATORY INFORMATION****OSHA Hazards**

Oxidizer, Carcinogen, Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Harmful by skin absorption., Irritant

**SARA 302 Components**

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

**SARA 313 Components**

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Cadmium nitrate	10022-68-1	1987-01-01

**SARA 311/312 Hazards**

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

**Massachusetts Right To Know Components**

No components are subject to the Massachusetts Right to Know Act.

**Pennsylvania Right To Know Components**

	CAS-No.	Revision Date
Cadmium nitrate	10022-68-1	1987-01-01

**New Jersey Right To Know Components**

	CAS-No.	Revision Date
Cadmium nitrate	10022-68-1	1987-01-01

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause cancer. Cadmium nitrate	10022-68-1	1987-10-01

**California Prop. 65 Components**

	CAS-No.	Revision Date
WARNING! This product contains a chemical known to the State of California to cause birth defects or other reproductive harm. Cadmium nitrate	10022-68-1	1987-10-01

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**16. OTHER INFORMATION****Further information**

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