

## SAFETY DATA SHEET

Creation Date 04-Oct-2007

Revision Date 27-Aug-2018

Revision Number 4

### 1. Identification

**Product Name** Cadmium nitrate tetrahydrate

**Cat No. :** C13-100; C13-500

**CAS-No** 10022-68-1  
**Synonyms** Nitric acid, cadmium salt, tetrahydrate.

**Recommended Use** Laboratory chemicals.  
**Uses advised against** Food, drug, pesticide or biocidal product use

#### Details of the supplier of the safety data sheet

##### Company

Fisher Scientific  
One Reagent Lane  
Fair Lawn, NJ 07410  
Tel: (201) 796-7100

##### **Emergency Telephone Number**

CHEMTREC®, Inside the USA: 800-424-9300  
CHEMTREC®, Outside the USA: 001-703-527-3887

### 2. Hazard(s) identification

#### Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Acute oral toxicity	Category 3
Acute dermal toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 2
Germ Cell Mutagenicity	Category 1B
Carcinogenicity	Category 1A
Reproductive Toxicity	Category 1B
Specific target organ toxicity - (repeated exposure)	Category 1

#### Label Elements

##### **Signal Word**

Danger

##### **Hazard Statements**

Toxic if swallowed  
Harmful in contact with skin  
Fatal if inhaled  
May cause genetic defects

May cause cancer  
 May damage fertility or the unborn child  
 Causes damage to organs through prolonged or repeated exposure



### Precautionary Statements

#### Prevention

Obtain special instructions before use  
 Do not handle until all safety precautions have been read and understood  
 Use personal protective equipment as required  
 Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Do not breathe dust/fume/gas/mist/vapors/spray  
 Use only outdoors or in a well-ventilated area  
 Wear respiratory protection

#### Response

IF exposed or concerned: Get medical attention/advice

#### Inhalation

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Immediately call a POISON CENTER or doctor/physician

#### Skin

IF ON SKIN: Wash with plenty of soap and water  
 Call a POISON CENTER or doctor/physician if you feel unwell  
 Wash contaminated clothing before reuse

#### Ingestion

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician  
 Rinse mouth

#### Storage

Store locked up  
 Store in a well-ventilated place. Keep container tightly closed

#### Disposal

Dispose of contents/container to an approved waste disposal plant

#### Hazards not otherwise classified (HNOC)

Very toxic to aquatic life with long lasting effects  
 WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

## 3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Cadmium nitrate tetrahydrate	10022-68-1	>95
Cadmium nitrate	10325-94-7	-

## 4. First-aid measures

#### General Advice

Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.

#### Eye Contact

In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.

<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Inhalation</b>	Move to fresh air. If not breathing, give artificial respiration. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Ingestion</b>	Do not induce vomiting. Call a physician or Poison Control Center immediately.
<b>Most important symptoms and effects</b>	None reasonably foreseeable.
<b>Notes to Physician</b>	Treat symptomatically

## 5. Fire-fighting measures

<b>Suitable Extinguishing Media</b>	Water spray. Carbon dioxide (CO <sub>2</sub> ). Dry chemical. Chemical foam.
<b>Unsuitable Extinguishing Media</b>	No information available
<b>Flash Point</b>	No information available
<b>Method -</b>	No information available
<b>Autoignition Temperature</b>	No information available
<b>Explosion Limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Oxidizing Properties</b>	Oxidizer
<b>Sensitivity to Mechanical Impact</b>	No information available
<b>Sensitivity to Static Discharge</b>	No information available

### Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire fighting to enter drains or water courses.

### Hazardous Combustion Products

Nitrogen oxides (NO<sub>x</sub>)

### Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

### NFPA

<b>Health</b> 4	<b>Flammability</b> 3	<b>Instability</b> 1	<b>Physical hazards</b> OX
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## 6. Accidental release measures

<b>Personal Precautions</b>	Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation. Keep people away from and upwind of spill/leak. Evacuate personnel to safe areas.
<b>Environmental Precautions</b>	Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.
<b>Methods for Containment and Clean Up</b>	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

## 7. Handling and storage

<b>Handling</b>	Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Use only under a chemical fume hood. Do not breathe vapors/dust. Do not
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ingest. Keep away from clothing and other combustible materials.

**Storage**

Do not store near combustible materials. Store under an inert atmosphere. Protect from moisture. Keep containers tightly closed in a dry, cool and well-ventilated place.

## 8. Exposure controls / personal protection

**Exposure Guidelines**

Component	ACGIH TLV	OSHA PEL	NIOSH IDLH	Mexico OEL (TWA)
Cadmium nitrate tetrahydrate	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>		IDLH: 9 mg/m <sup>3</sup>	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>
Cadmium nitrate	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>		IDLH: 9 mg/m <sup>3</sup>	TWA: 0.01 mg/m <sup>3</sup> TWA: 0.002 mg/m <sup>3</sup>

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

NIOSH IDLH: The National Institute for Occupational Safety and Health Immediately Dangerous to Life or Health

**Engineering Measures**

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

**Personal Protective Equipment****Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**

Long sleeved clothing.

**Respiratory Protection**

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

<b>Physical State</b>	Solid
<b>Appearance</b>	White
<b>Odor</b>	Odorless
<b>Odor Threshold</b>	No information available
<b>pH</b>	3.9 50% aq. solution
<b>Melting Point/Range</b>	59 °C / 138.2 °F
<b>Boiling Point/Range</b>	132 °C / 269.6 °F @ 760 mmHg
<b>Flash Point</b>	No information available
<b>Evaporation Rate</b>	Not applicable
<b>Flammability (solid,gas)</b>	No information available
<b>Flammability or explosive limits</b>	
<b>Upper</b>	No data available
<b>Lower</b>	No data available
<b>Vapor Pressure</b>	No information available
<b>Vapor Density</b>	Not applicable
<b>Specific Gravity</b>	No information available
<b>Solubility</b>	2150 g/L @ 20 °C
<b>Partition coefficient; n-octanol/water</b>	No data available
<b>Autoignition Temperature</b>	No information available
<b>Decomposition Temperature</b>	No information available
<b>Viscosity</b>	Not applicable

**Molecular Formula** Cd N2 O6 . 4 H2 O  
**Molecular Weight** 308.46

## 10. Stability and reactivity

**Reactive Hazard** Yes

**Stability** Hygroscopic.

**Conditions to Avoid** Incompatible products. Exposure to moist air or water. Combustible material. Excess heat.

**Incompatible Materials** Organic materials, Metals, copper, Reducing agents, Strong reducing agents, Combustible material

**Hazardous Decomposition Products** Nitrogen oxides (NOx)

**Hazardous Polymerization** No information available.

**Hazardous Reactions** None under normal processing.

## 11. Toxicological information

### Acute Toxicity

#### **Product Information** **Component Information**

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Cadmium nitrate tetrahydrate	LD50 = 300 mg/kg ( Rat )	Not listed	Not listed
Cadmium nitrate	LD50 = 300 mg/kg ( Rat )	Not listed	Not listed

**Toxicologically Synergistic Products** No information available

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Irritation** No information available

**Sensitization** No information available

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Cadmium nitrate tetrahydrate	10022-68-1	Not listed	Known	A2	X	Not listed
Cadmium nitrate	10325-94-7	Group 1	Known	A2	X	Not listed

*IARC: (International Agency for Research on Cancer)*

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*Group 1 - Carcinogenic to Humans*

*Group 2A - Probably Carcinogenic to Humans*

*Group 2B - Possibly Carcinogenic to Humans*

*NTP: (National Toxicity Program)*

*Known - Known Carcinogen*

*Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*

*A1 - Known Human Carcinogen*

*A2 - Suspected Human Carcinogen*

*A3 - Animal Carcinogen*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*ACGIH: (American Conference of Governmental Industrial Hygienists)*

*NTP: (National Toxicity Program)*

**Mutagenic Effects** Ames test: positive.

**Reproductive Effects** No information available.

**Developmental Effects** No information available.

<b>Teratogenicity</b>	No information available.
<b>STOT - single exposure</b>	None known
<b>STOT - repeated exposure</b>	None known
<b>Aspiration hazard</b>	No information available
<b>Symptoms / effects, both acute and delayed</b>	No information available
<b>Endocrine Disruptor Information</b>	No information available
<b>Other Adverse Effects</b>	The toxicological properties have not been fully investigated.

## 12. Ecological information

### Ecotoxicity

The product contains following substances which are hazardous for the environment. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Cadmium nitrate tetrahydrate	Not listed	Not listed	EC50 = 1.62 mg/L 30 min	Not listed

**Persistence and Degradability** Soluble in water Persistence is unlikely based on information available.

**Bioaccumulation/ Accumulation** No information available.

**Mobility** Will likely be mobile in the environment due to its water solubility.

## 13. Disposal considerations

**Waste Disposal Methods** Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

## 14. Transport information

### DOT

<b>UN-No</b>	UN2570
<b>Proper Shipping Name</b>	CADMIUM COMPOUNDS
<b>Proper technical name</b>	Cadmium nitrate tetrahydrate
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	II

### TDG

<b>UN-No</b>	UN2570
<b>Proper Shipping Name</b>	CADMIUM COMPOUND
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	II

### IATA

<b>UN-No</b>	UN2570
<b>Proper Shipping Name</b>	CADMIUM COMPOUND
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	II

### IMDG/IMO

<b>UN-No</b>	UN2570
<b>Proper Shipping Name</b>	CADMIUM COMPOUND
<b>Hazard Class</b>	6.1
<b>Packing Group</b>	II

## 15. Regulatory information

All of the components in the product are on the following Inventory lists: X = listed

#### International Inventories

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Cadmium nitrate tetrahydrate	-	-	-	-	-		X	X	X	X	-
Cadmium nitrate	X	X	-	233-710-6	-		X	X	X	X	X

#### Legend:

X - Listed

E - Indicates a substance that is the subject of a Section 5(e) Consent order under TSCA.

F - Indicates a substance that is the subject of a Section 5(f) Rule under TSCA.

N - Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.

P - Indicates a commenced PMN substance

R - Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.

S - Indicates a substance that is identified in a proposed or final Significant New Use Rule

T - Indicates a substance that is the subject of a Section 4 test rule under TSCA.

XU - Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).

Y1 - Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.

Y2 - Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

#### U.S. Federal Regulations

TSCA 12(b) Not applicable

#### SARA 313

Component	CAS-No	Weight %	SARA 313 - Threshold Values %
Cadmium nitrate tetrahydrate	10022-68-1	>95	0.1 1.0
Cadmium nitrate	10325-94-7	-	0.1 1.0

SARA 311/312 Hazard Categories See section 2 for more information

#### CWA (Clean Water Act)

Component	CWA - Hazardous Substances	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants
Cadmium nitrate tetrahydrate	-	-	X	-
Cadmium nitrate	-	-	X	-

#### Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Cadmium nitrate tetrahydrate	X		-
Cadmium nitrate	X		-

OSHA Occupational Safety and Health Administration

Not applicable

Component	Specifically Regulated Chemicals	Highly Hazardous Chemicals
Cadmium nitrate tetrahydrate	5 µg/m <sup>3</sup> TWA 2.5 µg/m <sup>3</sup> Action Level	-
Cadmium nitrate	5 µg/m <sup>3</sup> TWA 2.5 µg/m <sup>3</sup> Action Level	-

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

Component	CAS-No	California Prop. 65	Prop 65 NSRL	Category
Cadmium nitrate tetrahydrate	10022-68-1	Carcinogen	-	Carcinogen
Cadmium nitrate	10325-94-7	Carcinogen	-	Carcinogen

**U.S. State Right-to-Know Regulations**

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Cadmium nitrate tetrahydrate	-	X	X	X	X
Cadmium nitrate	-	X	X	X	X

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
 DOT Marine Pollutant N  
 DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

## 16. Other information

**Prepared By** Regulatory Affairs  
 Thermo Fisher Scientific  
 Email: EMSDS.RA@thermofisher.com

**Creation Date** 04-Oct-2007  
**Revision Date** 27-Aug-2018  
**Print Date** 27-Aug-2018  
**Revision Summary** This document has been updated to comply with the US OSHA HazCom 2012 Standard replacing the current legislation under 29 CFR 1910.1200 to align with the Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of SDS**