

# Material Safety Data Sheet

## Cadmium nitrate tetrahydrate

ACC# 03780

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Cadmium nitrate tetrahydrate**Catalog Numbers:** AC212340000, AC212342500, AC315060000, AC315061000, AC315065000, AC403750000, AC403755000, C13-100, C13-500**Synonyms:** Cadmium dinitrate tetrahydrate.**Company Identification:**

Fisher Scientific

1 Reagent Lane

Fair Lawn, NJ 07410

**For information, call:** 201-796-7100**Emergency Number:** 201-796-7100**For CHEMTREC assistance, call:** 800-424-9300**For International CHEMTREC assistance, call:** 703-527-3887

### Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
10022-68-1	Cadmium nitrate tetrahydrate	98+	unlisted

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: white crystals.

**Danger!** Strong oxidizer. Contact with other material may cause a fire. Harmful if swallowed, inhaled, or absorbed through the skin. Cancer hazard. Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. Causes eye and skin irritation. Hygroscopic (absorbs moisture from the air).**Target Organs:** Blood, skeletal structures, eyes, skin.

#### Potential Health Effects

**Eye:** Causes mild eye irritation.**Skin:** Causes skin irritation. Harmful if absorbed through the skin.**Ingestion:** Harmful if swallowed. May cause irritation of the digestive tract.**Inhalation:** Harmful if inhaled. May cause respiratory tract irritation.**Chronic:** Prolonged or repeated exposure may cause permanent bone structure abnormalities. May cause cancer in humans. Chronic inhalation may cause pulmonary emphysema.

### Section 4 - First Aid Measures

**Eyes:** Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid immediately.

**Skin:** Get medical aid immediately. Immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

**Ingestion:** Do not induce vomiting. Get medical aid immediately. Call a poison control center.

**Inhalation:** Get medical aid immediately. Remove from exposure and move to fresh air immediately. If breathing is difficult, give oxygen. Do not use mouth-to-mouth resuscitation if victim ingested or inhaled the substance; induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.

**Notes to Physician:** Treat symptomatically and supportively.

## Section 5 - Fire Fighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or chemical foam.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:**Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 2; Flammability: 1; Instability: 3; Special Hazard: OX

## Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Vacuum or sweep up material and place into a suitable disposal container. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Provide ventilation. Keep combustibles (wood, paper, oil, etc.,) away from spilled material. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

**Handling:** Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Use only in a chemical fume hood.

**Storage:** Do not store near combustible materials. Store in a cool, dry place. Store in a tightly closed container.

## Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use only under a chemical fume hood.

### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Cadmium nitrate tetrahydrate	0.01 mg/m <sup>3</sup> TWA (as Cd); 0.002 mg/m <sup>3</sup> TWA (respirable fraction, as Cd) (listed under Cadmium compounds).	9 mg/m <sup>3</sup> IDLH (dust and fume, as Cd) (listed under Cadmium compounds).	2.5 æg/m <sup>3</sup> Action Level (as Cd); 5 æg/m <sup>3</sup> TWA (as Cd, Do not eat, drink or chew tobacco or gum or apply cosmetics in regulated areas. Carcinogen - dust

			can cause lung and kidney disease. See 29 CFR 1910.1027) (listed under Cadmium compounds).
Cadmium nitrate anhydrous	0.01 mg/m <sup>3</sup> TWA (as Cd); 0.002 mg/m <sup>3</sup> TWA (respirable fraction, as Cd) (listed under Cadmium compounds).	9 mg/m <sup>3</sup> IDLH (dust and fume, as Cd) (listed under Cadmium compounds).	2.5 æg/m <sup>3</sup> Action Level (as Cd); 5 æg/m <sup>3</sup> TWA (as Cd, Do not eat, drink or chew tobacco or gum or apply cosmetics in regulated areas. Carcinogen - dust can cause lung and kidney disease. See 29 CFR 1910.1027) (listed under Cadmium compounds).

**OSHA Vacated PELs:** Cadmium nitrate tetrahydrate: No OSHA Vacated PELs are listed for this chemical.  
Cadmium nitrate anhydrous: No OSHA Vacated PELs are listed for this chemical.

**Personal Protective Equipment**

**Eyes:** 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:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** 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.

## Section 9 - Physical and Chemical Properties

**Physical State:** Crystals

**Appearance:** white

**Odor:** odorless

**pH:** 3.9 (50g/L aq. sol.)

**Vapor Pressure:** Negligible.

**Vapor Density:** Not available.

**Evaporation Rate:** Negligible.

**Viscosity:** Not available.

**Boiling Point:** 132 deg C @ 760 mmHg

**Freezing/Melting Point:** 59 deg C

**Decomposition Temperature:** Not available.

**Solubility:** 2150 g/L (20°C)

**Specific Gravity/Density:** 2.455 @ 17C

**Molecular Formula:** Cd(NO<sub>3</sub>)<sub>2</sub>·4H<sub>2</sub>O

**Molecular Weight:** 308.46

## Section 10 - Stability and Reactivity

**Chemical Stability:** Hygroscopic: absorbs moisture or water from the air.

**Conditions to Avoid:** Incompatible materials, dust generation, combustible materials, exposure to moist air or water.

**Incompatibilities with Other Materials:** Reducing agents, copper, copper alloys, phosphorus, organic materials.

**Hazardous Decomposition Products:** Nitrogen oxides.

**Hazardous Polymerization:** Has not been reported.

## Section 11 - Toxicological Information

**RTECS#:****CAS#** 10022-68-1: EV1850000**CAS#** 10325-94-7: EV1750000**LD50/LC50:****CAS#** 10022-68-1:

Draize test, rabbit, eye: 20 mg/24H Moderate;

Draize test, rabbit, skin: 500 mg/24H Severe;

Oral, rat: LD50 = 300 mg/kg;

**CAS#** 10325-94-7:

Oral, mouse: LD50 = 47 mg/kg;

Oral, rat: LD50 = 300 mg/kg;

**Carcinogenicity:****CAS#** 10022-68-1:

- **ACGIH:** A2 - Suspected Human Carcinogen (listed as 'Cadmium compounds').
- **California:** carcinogen, initial date 10/1/87 (listed as Cadmium compounds).
- **NTP:** Known carcinogen (listed as Cadmium compounds).
- **IARC:** Group 1 carcinogen (listed as Cadmium compounds).

**CAS#** 10325-94-7:

- **ACGIH:** A2 - Suspected Human Carcinogen (listed as 'Cadmium compounds').
- **California:** carcinogen, initial date 10/1/87 (listed as Cadmium compounds).
- **NTP:** Known carcinogen (listed as Cadmium compounds).
- **IARC:** Group 1 carcinogen

**Epidemiology:** IARC Group 1: Proven human carcinogenic substance. See actual RTECS.**Teratogenicity:** No information found**Reproductive Effects:** No information found**Mutagenicity:** No information found**Neurotoxicity:** No information found**Other Studies:**

## Section 12 - Ecological Information

**Ecotoxicity:** Fish: Rainbow trout: 55ug/L; 48H; Fish: Fathead Minnow: 820ug/L; 48H; No data available.**Environmental:** Terrestrial: May migrate in the environment in the form of nitrate, chloride, carbonate complexes, hydroxide complexes, ammonia complexes, and as chelated and other organo-metallic complexes resulting from decay of plant and animal matter. Aquatic: Relatively mobile and may be transported in solution as either hydrated cations or as organic or inorganic complexes. Not expected to biodegrade but will bioconcentrate.**Physical:** No information available.**Other:** Do not empty into drains.

## Section 13 - Disposal Considerations

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	Canada TDG
<b>Shipping Name:</b>	NITRATES, INORGANIC, N.O.S.	NITRATES, INORGANIC NOS
<b>Hazard Class:</b>	5.1	5.1
<b>UN Number:</b>	UN1477	UN1477
<b>Packing Group:</b>	II	II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 10022-68-1 is not on the TSCA Inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (40CFR720.3(u)(2)).

CAS# 10325-94-7 is listed on the TSCA inventory.

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

#### TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

#### CERCLA Hazardous Substances and corresponding RQs

None of the chemicals in this material have an RQ.

#### SARA Section 302 Extremely Hazardous Substances

None of the chemicals in this product have a TPQ.

#### SARA Codes

CAS # 10022-68-1: immediate, delayed, fire.

CAS # 10325-94-7: immediate, delayed, fire.

#### Section 313

This material contains Cadmium nitrate tetrahydrate (listed as Cadmium compounds), 98+%, (CAS# 10022-68-1) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

This material contains Cadmium nitrate anhydrous (listed as Cadmium compounds), -%, (CAS# 10325-94-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

#### Clean Air Act:

CAS# 10022-68-1 (listed as Cadmium compounds) is listed as a hazardous air pollutant (HAP).

CAS# 10325-94-7 (listed as Cadmium compounds) is listed as a hazardous air pollutant (HAP).

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

#### Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA. CAS# 10022-68-1 is listed as a Toxic Pollutant under the Clean Water Act. CAS# 10325-94-7 is listed as a Toxic Pollutant

under the Clean Water Act.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 10022-68-1 can be found on the following state right to know lists: California, (listed as Cadmium compounds), New Jersey, (listed as Cadmium compounds), New Jersey, (listed as Cadmium inorganic compounds), Pennsylvania, (listed as Cadmium compounds), Minnesota, (listed as Cadmium compounds).

CAS# 10325-94-7 can be found on the following state right to know lists: California, (listed as Cadmium compounds), New Jersey, (listed as Cadmium compounds), Pennsylvania, (listed as Cadmium compounds), Minnesota, (listed as Cadmium compounds).

**California Prop 65****The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:**

WARNING: This product contains Cadmium nitrate tetrahydrate, listed as 'Cadmium compounds', a chemical known to the state of California to cause cancer. WARNING: This product contains Cadmium nitrate anhydrous, listed as 'Cadmium compounds', a chemical known to the state of California to cause cancer.

California No Significant Risk Level: None of the chemicals in this product are listed.

**European/International Regulations****European Labeling in Accordance with EC Directives****Hazard Symbols:**

T O N

**Risk Phrases:**

R 20/21/22 Harmful by inhalation, in contact with skin and if swallowed.

R 45 May cause cancer.

R 8 Contact with combustible material may cause fire.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Safety Phrases:**

S 17 Keep away from combustible material.

S 36/37 Wear suitable protective clothing and gloves.

S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

S 53 Avoid exposure - obtain special instructions before use.

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment. Refer to special instructions /safety data sheets.

**WGK (Water Danger/Protection)**

CAS# 10022-68-1: No information available.

CAS# 10325-94-7: 3

**Canada - DSL/NDSL**

CAS# 10325-94-7 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of C, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 10022-68-1 is not listed on the Canadian Ingredient Disclosure List.

CAS# 10325-94-7 is listed on the Canadian Ingredient Disclosure List.

**Section 16 - Additional Information**

**MSDS Creation Date:** 3/24/1999

**Revision #9 Date:** 2/13/2008

*The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Fisher be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.*